



FRIDAY, NOVEMBER 20.

Text of the New Trunk Line Contract.

The following is a complete and accurate copy of the new trunk-line contract made this 6th day of November, 1885, by and between

The Grand Trunk Railway Company, of Canada.
The Pennsylvania Railroad Company.
The New York Central & Hudson River Railroad Company.
The New York, West Shore & Buffalo Railway.
The Delaware, Lackawanna & Western Railroad Company.
The New York, Lake Erie & Western Railroad Company.
The Baltimore & Ohio Railroad Company.

[The western termini of the roads of these parties, herein referred to, are understood to be as follows: Toronto, Suspension Bridge, Niagara Falls, Tonawanda, Black Rock, Buffalo, East Buffalo, Buffalo Junction, Dunkirk, Salamanca, Erie, Pittsburgh, Bellaire, Wheeling, Parkersburg.]

Whereas, Past experience has fully established the fact that the joint action of competing railroad companies in establishing and adhering to uniform rates of transportation for like services to the public is necessary, in order to avoid the evils of unjust discrimination and fluctuating rates, so injurious to commercial, as well as to the railroad interests:

Therefore, The parties above named enter into the following contract for the purpose of jointly establishing tariffs over their respective roads on competitive traffic, both passenger and freight (hereafter more particularly specified), and of publishing said tariffs and strictly maintaining the same.

Art. I.—All measures necessary to carry out the purpose of this contract shall be taken jointly by the parties hereto, or jointly by such of the parties as may be directly interested, and should any question arise upon which they cannot agree in relation to the terms of this contract or to any matter arising hereunder, it shall be decided by arbitration, as hereafter provided, it being one of the fundamental principles of this contract that no party shall take separate action in any matter affecting the interests of one or more of the other parties, contrary to the spirit and intent of this contract.

Art. II.—The parties to this contract (who, for convenience sake, will hereinafter be designated as "the Trunk Lines") agree to enter jointly into arrangements with their connecting roads (both immediate and indirect), for the establishment of through tariffs to and from points beyond the termini of the trunk line roads, and for the distribution of the traffic of said connecting roads among the trunk lines, as hereinafter provided.

Art. III.—The conditions upon which the trunk lines will enter into such arrangements are: That said connecting roads will also strictly adhere to such established tariffs, and comply with the rules and regulations contained in this contract, or that may from time to time be established by the trunk lines, in the common interest, to secure the objects set forth. It is an essential part of this contract that the trunk lines will not continue to be, nor hereafter become, parties to any traffic arrangements with any of the aforesaid connecting roads which decline or fail to cooperate with them to this end.

Art. IV.—The traffic arrangements herein referred to are: The issue or honoring of joint through bills of lading or through tickets; the interchange of through freight or passenger cars; the collection and advancing of freight charges or passenger fares; or participating, by divisions, in through rates or fares upon the traffic covered by this contract. When the term "affiliated roads" is hereafter used, it refers to all connecting roads which agree to cooperate with the trunk lines, and with which any of such traffic arrangements are established.

Art. V.—The trunk lines will communicate to the aforesaid connecting roads the conditions expressed in Art. III., upon which they will continue the traffic arrangements (both freight and passenger) referred to in Art. IV., and will require the written consent (in agreed form) of the aforesaid connecting roads to said conditions, which shall be filed with this contract.

Art. VI.—Each of the trunk lines further undertakes to fully control the maintenance of agreed rates and fares on its own road, as well as over its affiliated roads, so far as such rates and fares are the subject of this contract.

It is the fundamental principle of this contract that each trunk line shall act as the fully authorized agent and representative of its affiliated roads in all matters connected with the maintenance of the joint tariffs referred to herein, so far as traffic over its own road is concerned, and with the distribution of traffic among the trunk lines provided for herein; and that no officer or agent of said affiliated roads shall have the authority or power to vary from such agreed joint tariffs or do any act in violation of this contract.

Art. VII.—The managers and agents of the fast freight lines having traffic arrangements with any of the trunk lines shall be under the sole control of the trunk line over whose road said fast freight lines are operated, so far as the maintenance of agreed tariffs is concerned; and any officer or agent of a fast freight line who, in violation of this contract, makes special agreements for reduced rates, or which have the effect of evading, directly or indirectly, the established tariff and rules, even when ordered to do so by any connecting road, shall be discharged from the service and shall not be employed by any trunk line or its affiliated roads, and no trunk line shall be party to carrying out such agreements.

Art. VIII.—It is further agreed that no trunk line or its affiliated roads shall enter into any contract with shippers, upon traffic covered by this contract, which guarantees rates for any period of time; and that rates shall only be quoted from day to day; but this shall not prevent the guaranteeing of tariff rates on traffic which can be forwarded within ten days, or such other time as may be agreed upon for giving notice of an advance in tariff; nor shall it prevent the establishment of tariffs on special articles for a specified time by joint action.

Art. IX.—The tariffs to be established and maintained under this contract apply to—

- 1st.—East-bound dead freight and live stock and dressed meat traffic, as may be more fully specified hereafter.
- 2d.—West-bound freight from the seaboard cities to the western termini of the trunk lines and beyond.
- 3d.—Competitive passenger traffic, first and second class, as may be more fully specified hereafter.
- 4th.—Immigrant traffic.

DIVISION OF TRAFFIC.

Art. X.—In order to secure the maintenance of agreed tariffs by removing the motive for their violation, openly or secretly, it is further agreed that the following divisions of traffic shall be made between the Trunk Lines:

- 1st.—East-bound dead freight traffic.

2d.—East-bound live stock and dressed meat traffic.

3d.—West-bound freight traffic.

4th.—Passenger traffic, east-bound and west-bound, first and second class.

5th.—Immigrant traffic.

And such other divisions as may hereafter be agreed upon.

Art. XI.—Separate contracts shall be made covering each division, based upon the principle that suitable provisions shall be made in each contract for each line's securing and carrying its allotted percentage, and that only such compensation, if any, shall be allowed for carrying excess of freight or passengers as will promote this result. Settlement of balances which may accrue under said contracts shall be made monthly.

Art. XII.—In order to secure the prompt payment of such balances, the contracts for division of traffic shall provide for deposits of a sufficient amount of money to the credit of a trustee, upon which the monthly drafts for settlement of balances shall be made.

Art. XIII.—Other railroad companies not parties to this contract, but whose co-operation is deemed necessary or desirable, may also become parties to said divisions by consent of the trunk lines directly interested.

DIVISION OF TRAFFIC BETWEEN CONNECTING ROADS.

Art. XIV.—The trunk lines recognize as a necessity that their western connecting roads, to promote their own interest as well as that of the trunk lines, shall arrange for a fair division between themselves of traffic originating west of the western termini of the trunk line roads and destined to said termini or east thereof; and for a division of the west-bound traffic originating at or east of the western termini of the trunk line; and also that their eastern connections shall arrange for divisions of traffic originating east of the eastern termini of the trunk line roads, and destined to their western termini or west thereof. The trunk lines will, therefore, jointly request their affiliated roads to at once enter into contracts for such divisions from all points at which the traffic has heretofore been divided, and from such additional points as may be deemed necessary. They further agree that they will give such aid to said affiliated roads as may be necessary to carry out said contracts.

Art. XV.—The disposition to be made of the traffic of the affiliated roads, so far as it affects the interests of the trunk lines, shall be subject to the approval of the trunk lines, acting jointly, and shall not be in conflict with the intent and spirit of this contract, viz.: The mutual protection of the trunk lines and their affiliated roads.

Art. XVI.—In case any connecting road, at a point where a division of traffic may be deemed necessary, refuses to become a party to such division, and it should become necessary, in order to protect the parties to such division, the trunk lines will act jointly in determining the relations of such connecting road to the trunk lines.

Art. XVII.—It being one of the objects of this agreement to reduce the expenses of the companies parties hereto, the trunk lines further agree that they will limit the fast freight or co-operative lines to the lowest possible number consistent with the proper conduct of their business; and all soliciting and advertising agencies shall be reduced to such number as may be deemed necessary for the convenience of the public and proper conduct of the traffic; and so far as practicable, all offices outside of the regular station offices of the respective companies parties hereto shall be made joint offices.

Art. XVIII.—The trunk lines hereby further agree that after Jan. 1, 1886, they will not, in reference to any passenger traffic covered by this agreement, pay or be parties to the payment of commissions to any agent of any other railroad company for selling tickets or securing passenger business over their respective roads, and that they will not permit any of their agents to receive commissions for such purposes; and all systems of paying commissions for sale of passenger tickets or securing passenger traffic shall, so soon as practicable, be absolutely abolished.

Art. XIX.—This contract shall go into effect the 7th day of November, 1885, and continue in full force and effect until Dec. 31, 1886, and from year to year thereafter. It may be terminated on the 31st day of December of any year by any party hereto giving three months prior notice, in writing, of their desire to withdraw therefrom.

In witness of this contract the parties hereto have severally caused to be affixed the signature of their President or Chief Executive Officer.

The New Trunk Line Organization and Rates.

The following is the full text of organization by which the new contract of the trunk lines is to be carried out:

Whereas, On this 6th day of November, 1885, a contract has been entered into, for the purposes fully stated therein, between the following parties:

[Names of Eastern trunk line companies follow, as in contract.]

Now, therefore, in order to successfully carry out the provisions of said contract, the following organization and general rules are hereby agreed to and adopted:

TRUNK LINE PRESIDENTS' COMMITTEE.

§ 1.—The presidents or chief executive officers of the companies shall constitute a committee, to be known as the Trunk Line Presidents' Committee, which committee shall decide upon all measures necessary to carry out the purpose of the contract above referred to, and authorize the same to be put into effect. The committee shall elect a chairman from its own members.

§ 2.—Meetings of the Presidents' Committee may be held at stated times to be agreed upon, or may be called by the Chairman whenever he deems it necessary, or upon the request of any member.

§ 3.—All joint measures referred to in § 1, upon which the Presidents' Committee, after full consideration, cannot agree, shall be finally decided by arbitration in the manner more particularly specified hereinafter.

TRUNK LINE EXECUTIVE COMMITTEE.

§ 4.—The Presidents' Committee shall appoint an Executive Committee, to be called the Trunk Line Executive Committee, and to consist of a Vice-President of each company, which committee shall be charged with carrying out, in detail, the instructions of the Presidents' Committee.

§ 5.—The Presidents' Committee shall also appoint a Commissioner, who shall act as Secretary of said committee, and as Chairman of the Trunk Line Executive Committee, and who shall, under the direction of said committee, carry out any measures agreed upon or decided by arbitration, acting as their executive officer.

§ 6.—The Trunk Line Executive Committee shall meet at stated times, to be agreed upon, or upon the request of any member, or whenever deemed necessary by the Chairman.

§ 7.—In case the Trunk Line Executive Committee is not unanimous upon any question, it shall be the duty of the Commissioner to endeavor to secure an agreement; but failing to do so, the question at issue shall be forthwith submitted to the Presidents' Committee for their action, and they failing to agree, to arbitration, as specified above. The Presidents' Committee may direct that certain questions of difference, which do not require their special attention, shall

be arbitrated in the Executive, Freight or Passenger Committees, and the rules of these committees may specify cases that shall go to arbitration in said committee, without being referred to the Presidents' Committee.

§ 8.—Should any question arise in the Trunk Line Executive Committee which requires an immediate decision and upon which the members of the committee cannot agree, the Commissioner shall, at the request of two-thirds of the members of the committee, make a temporary decision, subject to the final action of the President's Committee or arbitration, as above provided.

FREIGHT AND PASSENGER COMMITTEES.

§ 9.—The Trunk Line Executive Committee shall appoint two sub-committees, one for the freight department, to be called the Freight Committee, consisting of the traffic managers or general freight agents, and one for the passenger department, to be called the Passenger Committee, consisting of the traffic managers or general passenger agents of the respective companies; and to them shall be intrusted the transaction of such business as is delegated to those officers in their respective departments in the service of their companies.

§ 10.—The Trunk Line Executive Committee shall appoint a Commissioner for the Freight Department and a Commissioner for the Passenger Department, each of whom shall act as Chairman at the meetings of their respective committees, with the same duties in said committees as those of the Commissioner in the Executive Committee, as specified above.

§ 11.—In case of failure to agree in said Freight and Passenger Committees, the questions at issue shall be referred to the Executive Committee, to be acted upon as hereinafter provided.

SPECIAL COMMITTEES.

§ 12.—The Freight and Passenger Committees may appoint sub-committees for special purposes as may be deemed necessary to facilitate the transaction of business.

AUTHORITY OF COMMITTEES.

§ 13.—The members of the Executive Committee and of the Freight and Passenger Committees are authorized to act with full authority upon all questions which come under the jurisdiction of the office they hold in the service of their companies. No officer or agent of any company shall be a member of said committees who has not full authority to act upon all questions that legitimately come before said committees. In case any company has no Vice-President in charge of the Traffic Department, such company shall appoint an officer on the Trunk Line Executive Committee, fully authorized to deal with both freight and passenger matters in meetings of said committee; the intention being that all business that comes within the sphere of action of each committee shall be promptly and finally acted upon under its rules.

§ 14.—The object for which meetings of the several committees are called shall be communicated to the members of the committees at the time the call is made; but this shall not prevent the consideration, with the consent of all the members, of other business at such meetings upon which action may be required.

§ 15.—Should any road be unable to be represented at any meeting of the Executive, Freight or Passenger Committees, and should it be necessary to take immediate action upon the subject matter under consideration, the Chairman of such committee shall be authorized by the roads not represented to act for said roads, such action to be binding until revoked at a subsequent meeting, when the roads may be represented; it being the intention of this provision to avoid delay that might arise from the non-attendance of members.

§ 16.—Each of the committees above named shall establish its rules of procedure, as well as regulations by which its business shall be governed, not in conflict with the general organization. The rules of the Trunk Line Executive Committee are to be subject to the approval of the Presidents' Committee; and those of the Freight and Passenger Committees to the approval of the Trunk Line Executive Committee.

§ 17.—In all questions of order and procedure in said committees not specially provided for in the rules, the vote of a majority of the members of the committee shall govern, and in case of a tie vote, the decision of the Chairman shall be final; but all questions on which there may be disagreement in respect of measures necessary to promptly and efficiently carry out the purpose and object of the contract, if not finally decided by the Presidents' Committee, shall be decided by arbitration.

§ 18.—A Secretary of the Trunk Line Executive Committee, as well as Secretaries for the Freight and Passenger Committees, shall be appointed by the chairmen, with the approval of the respective committees, whose duty it shall be to keep records of the proceedings of the various committees, and to perform such other services as may be assigned to them.

§ 19.—Copies of the proceedings of meetings shall be furnished to the members of the committees, respectively, after the adjournment of each meeting, and they shall carefully examine the same and notify the Chairman promptly of any correction or change therein that may be required. Unless such notice is received within a week after the receipt of the proceedings, it shall be presumed that they are approved.

§ 20.—The Commissioner shall also appoint such other officers and clerks as may be deemed necessary by the Executive Committee, to carry out the work contemplated under the contract.

EXPENSES OF ORGANIZATION.

§ 21.—The expenses of the organization shall be borne by the parties to the contract in proportion to the gross revenue derived from the business covered thereby, as nearly as this can be ascertained.

§ 22.—The Commissioner shall have supervision of the expenses of the organization, under the direction of the Trunk Line Executive Committee, and said Committee shall audit the accounts monthly, or cause them to be audited through a sub-committee.

§ 23.—A deposit of \$15,000 shall be made with the Commissioner, as a working fund to defray the current expenses of the organization. The amount to be deposited by each trunk line shall be assessed on the basis stated in § 21.

ARBITRATION.

§ 24.—A permanent Arbitrator (or Board of Arbitration) shall be appointed by the Trunk Line Presidents' Committee, to whom shall be submitted for final decision all questions arising under the contract, upon which the parties thereto cannot agree. It shall be the duty of said Arbitrator to devote his whole time to the duties of his office, to attend the meetings of the various committees as far as practicable, and to keep himself informed as to the facts bearing on all questions which are likely to arise and upon which he may be called to adjudicate.

§ 25.—Before any question is submitted to arbitration, a meeting of the interested parties shall be held for the purpose of endeavoring to agree upon the question at issue, at which the Arbitrator shall be present. If no agreement can be reached, and the arguments and facts laid before the meeting are thought to be sufficient, by the interested parties as well as by the Arbitrator, to form a basis for decision, said decision

shall be rendered by the Arbitrator upon such facts, as soon as practicable, without further hearing.

§ 26.—But if it is thought necessary to have additional facts and arguments submitted, in order to enable the Arbitrator to reach correct conclusions, then such additional facts and arguments shall be laid before the Arbitrator within 10 days from the date of said meeting, except in cases where their preparation may require additional time, when such additional time shall be determined by the Arbitrator.

§ 27.—Within a week from the submission of such arguments and facts, a decision shall be rendered by the Arbitrator.

§ 28.—If said decision is not satisfactory to any one of the interested parties, and it can be shown to the satisfaction of the Arbitrator, within five days after the decision is made, that facts which should have had a material bearing upon his decision were either not fully considered or were not submitted at the first hearing, the case shall be immediately reopened. The grounds upon which such reopening is granted by the Arbitrator shall be fully stated by him and communicated to the interested parties with the arguments of the dissenting party or parties within 15 days after the original decision is made; and a hearing shall be had within 10 days thereafter. At such re-hearing parties shall be permitted to submit only arguments and facts pertinent to the questions raised by the dissenting party or parties, and upon which the re-hearing was granted; and the Arbitrator shall then either reaffirm or modify his previous decision, and this shall be final.

§ 29.—Nothing in the above rules shall prevent the settlement of any question upon which the Trunk Line Executive or the Freight or Passenger Committees cannot agree, by a decision of the chairman of the respective committees, when submitted to them by agreement of the parties interested; provided the questions at issue can be acted upon under the authority conferred on the respective committees.

RELATIONS WITH AFFILIATED ROADS.

§ 30.—To facilitate the transaction of business between the trunk lines and their affiliated roads, the chief managing officers of said affiliated roads and the members of the Trunk Line Executive Committee shall constitute a committee to be called a Joint Committee. It shall be its duty to establish all through tariffs and classifications, to agree upon divisions of through rates and through fares, and to make such rules and regulations affecting the tariffs as may be deemed necessary to secure uniformity and stability.

§ 31.—The Chairman of the Trunk Line Executive Committee shall act as Chairman of the Joint Committee, with the same duties as under the organization of the Trunk Line Executive Committee; but said Joint Committee may make such additional organization as may be deemed desirable to carry out the object for which it is established.

§ 32.—The Joint Committee shall appoint the following sub-committees: An East-bound Classification Committee; Cotton Rate Committee; Tobacco Rate Committee; and such other committees as may be considered necessary to facilitate the transaction of business.

§ 33.—The Trunk Line Executive Committee shall act as the Standing Committee of the Joint Committee.

§ 34.—If the Joint Committee cannot agree upon joint tariffs, or upon any rules or regulations affecting said tariffs, or upon the division of rates and fares with common connections of two or more trunk lines, the Trunk Line Executive Committee shall decide the question under its rules, after hearing the arguments of the various parties interested.

§ 35.—If any affiliated road is not represented at any meeting of the Joint Committee, the trunk line or trunk lines over which said road has traffic arrangements shall represent the said affiliated road. In case any affiliated road has traffic arrangements with several trunk lines, who may not be able to agree, then the Trunk Line Executive Committee as a whole shall take action under its rules upon the question at issue.

§ 36.—The Joint Committee may be called together at the request of three members of the Trunk Line Executive Committee, or at the request of the chief managing officers of three of the affiliated roads, or by the Chairman.

GENERAL RULES.

It being recognized that the successful carrying out of the contract depends upon the good faith of the parties thereto, and that it therefore becomes the duty of each trunk line, not only to conform to the intent and spirit of the contract, so far as its own road is concerned, but also to take the responsibility for the acts of its affiliated roads, the following general rules based upon this principle are hereby adopted, subject to such amendments and additions as experience may suggest:

§ 37.—In case a violation of the established tariffs or the rules governing the same comes to the knowledge of any trunk line, notice shall at once be given to the Commissioner, who shall communicate the charges to the trunk line over whose road the traffic upon which the alleged violation is made, has been forwarded, or is to be forwarded, and said trunk line shall at once make the necessary investigation of the acts of its own agents or the agents of its connecting or fast freight lines for which it has assumed the responsibility, and, finding the charge correct, it shall immediately take measures to remove the cause of complaint and report the facts and any action taken, through the Commissioner, to the Trunk Line Executive Committee, which, if necessary, shall at once be called together to take joint action in conformity with the contract.

§ 38.—Should a violation of the established tariffs or the rules governing the same, come to the knowledge of any of the affiliated roads, the same shall be reported to the trunk line or trunk lines with which it has traffic arrangements, and said trunk line shall proceed as provided in § 37.

§ 39.—If the cause of complaint is not removed within a week from the time the complaint is made, or if any trunk line neglects or refuses to take prompt and proper action in the matter, as provided in § 37, it shall be the duty of the Commissioner to at once call a meeting of the Executive Committee, to take such action in the matter as may be deemed necessary to enforce the provisions of the contract.

§ 40.—Pending the action of the Executive Committee, the complaining party shall not meet any alleged reductions in rates or take any separate action whatsoever in violation of the contract; but all action necessary to protect the trunk lines and their affiliated roads shall be taken jointly, and under the instructions of the Executive Committee.

§ 41.—The Trunk Line Executive Committee is authorized, under the direction of the Presidents' Committee, to enter into agreements with competing roads, not parties to the contracts, for the establishment of joint tariffs and the maintenance of the same.

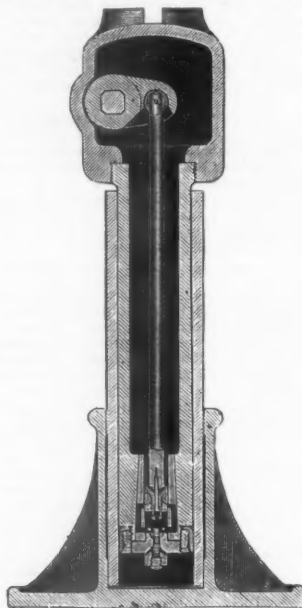
§ 42.—None of the affiliated roads shall enter into traffic arrangements with roads whose tariffs affect the tariffs established under the contract, except upon the condition that such roads shall maintain the said tariffs or enter into agreements for the establishment and maintenance of special tariffs on competitive traffic. In case no such agreements can be made, such joint action shall be taken by the trunk lines as may be necessary for their protection.

§ 43.—None of the trunk lines nor their affiliated roads shall make reductions in the established tariffs on the plea that some competing road, not party to the contract, has made reductions affecting said tariffs; but the case shall be reported through the Commissioner to the Executive Committee, for joint action.

The Giant Hydraulic Jack.

The accompanying engravings represent a form of hydraulic jack manufactured by the Giant Hydraulic Jack Co., at McKeesport, Pa.

The following are some of the advantages claimed for the



General View.

THE GIANT HYDRAULIC JACK.

Giant Jack, as compared with other forms of hydraulic jacks:

All parts are made to standard numbered gauges and templates.

The entire valve arrangement can be easily examined without taking the jack apart, or using a vise or special wrenches. To get at all the working parts of the Giant jack, simply run the ram up, as if in the act of lifting a load; then lift the ram out of the cylinder, and with an ordinary monkey-wrench any adjustment of the valves for packing can be made in a few moments.

The valves are complete in one part, and, like all other parts, are dust-proof and cannot become clogged by sediment. The entire valve arrangement being easy of access, can be taken apart and put together again quickly. The check may be tried before being replaced, so that it is an impossibility for any of the parts to become displaced after the block is screwed into place.

Many hydraulic jacks are unreliable in their upward and downward movements, as the spring which regulates the

ing its being imbedded in the packing and destroying its surface.

A steel valve on a brass seat, as in the check, and a brass valve on a steel seat, as in the plunger, are less liable to cut, the hard face of the one keeping the soft face of the other true, requiring less attention than steel to steel or iron to iron.

The packing is self-adjusting, and consequently requires little attention, and is not liable to leak when left standing under a heavy load.

The packing gland around the lever socket can be tightened, preventing waste of liquid and the disagreeable necessity of handling dirty jacks.

The improved liquid-passages at the bottom of the ram are constructed by inserting a brass bushing, made with a recess turned from the outside, into which holes are drilled to the inside, thus giving a free open space between the recessed outside diameter of the brass bushing and the inside diameter of the ram, for the passage of the liquid. In some makes of hydraulic jacks this object is accomplished by inferior methods, such as holes drilled into the body of the ram, which form angles and produce friction, or diagonal grooves which retard the active flow of liquid and soon wear the plunger and packings.

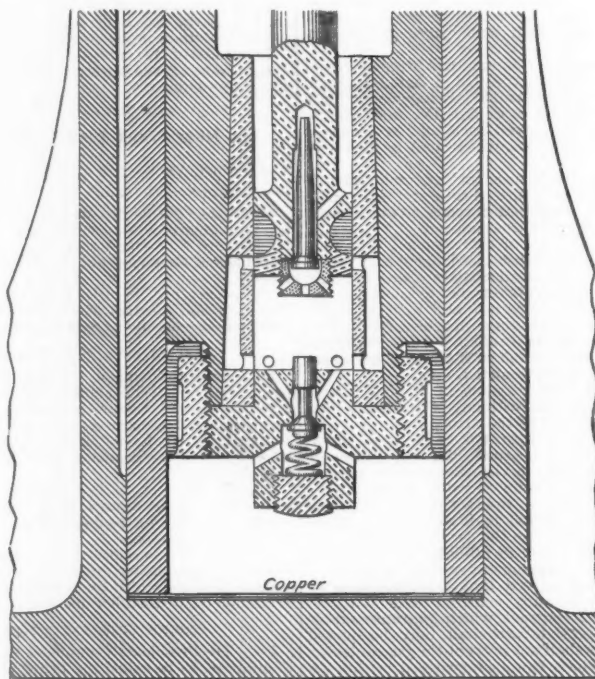
The makers have adopted the following formula, as a mixture for filling jacks, finding it superior to all others: Glycerine, one part; alcohol, one part; water, two parts.

The Palmer Torpedo Signal.

The fact that no visual signal alone, however prominent and well placed, is a perfect protection against the most reckless running into danger, or even a nearly perfect protection, is well known to all who have given the subject attention. Not only do they become almost invisible in "fog," that continually repeated excuse for accidents, but even in good weather, and when the signal is in plain sight, unaccountable fits of absent-mindedness will sometimes strike the most experienced employes. One such very recent instance was noticed in our discussion of "Three Collisions" in our issue of Oct. 23, and another, one of the most fearful catastrophes on record, is described in Mr. Adams' interesting book on "Railroad Accidents," where the engineer of a heavily loaded emigrant train ran directly by a danger signal in plain sight on a straight track and on a clear day, and dumped his train into an open draw.

A signal which will appeal to another sense than sight at the same time is therefore greatly to be desired, especially if its use be attended with little or no additional inconvenience. This is hardly the case with the ordinary torpedo signal, since it involves some trouble both to place it in position and to remove it. Its use is therefore chiefly restricted to foggy weather, or to points where no other signal is available. Moreover, where only one form of signal is possible, a torpedo is a more certain and positive protection, if it explodes properly, than any visual signal.

The device illustrated by the engravings herewith is designed to furnish such a signal by supplying a ready method of placing a torpedo on the track from a distant point and



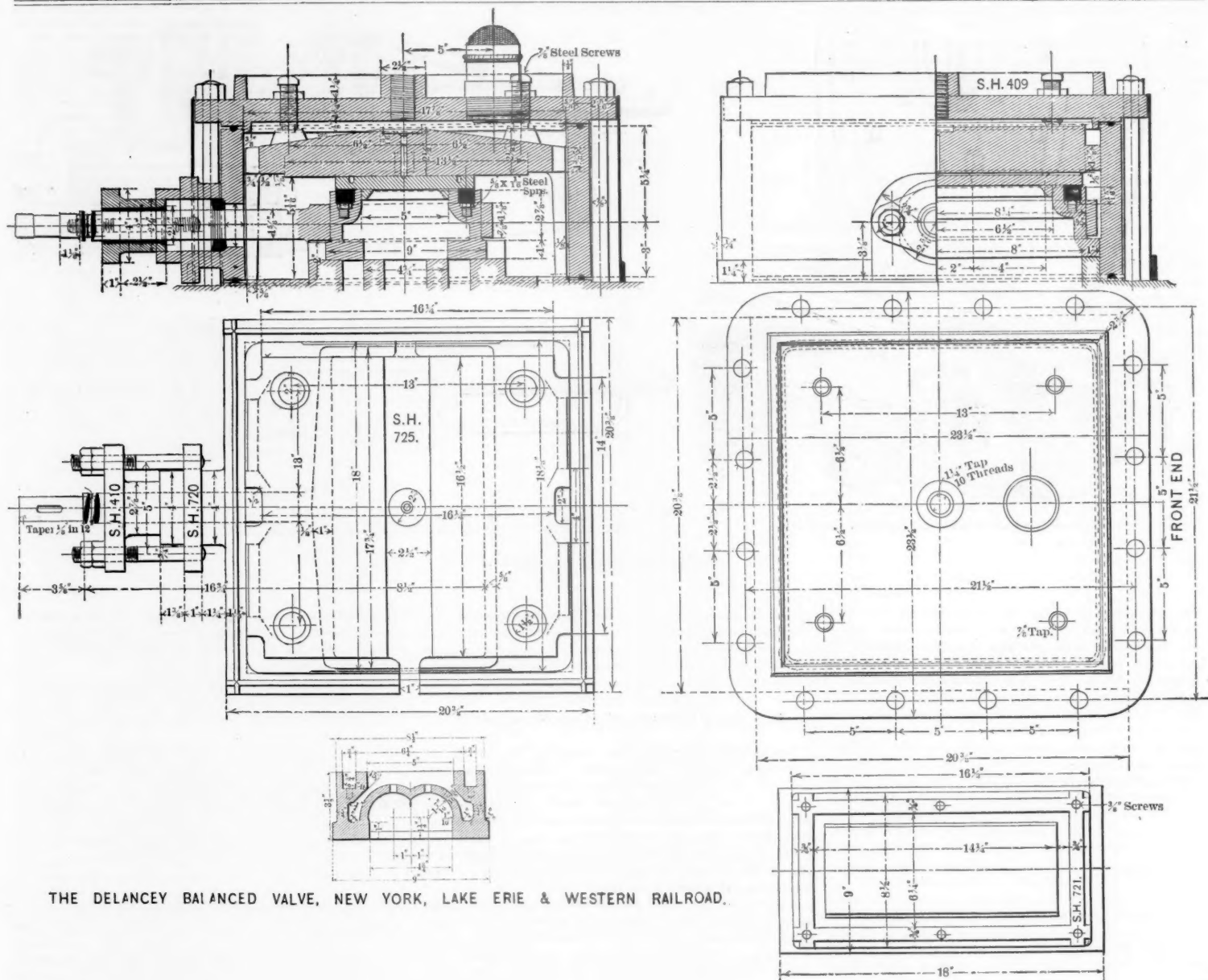
Detail View of Valves and Packing.

THE GIANT HYDRAULIC JACK.

valve is liable to drop out and be crushed between the ram and plug; or the spring may be forced to one side of the valve, clamping it in place, and preventing its working. These defects cannot be guarded against in the ordinary jacks, but are prevented by the peculiar construction of the Giant jack.

When the valves require grinding, the emery can be washed from the passages before the check is inserted, thus prevent-

withdrawing it again when the necessity for its use has passed. It is therefore adapted for use in connection with any form of visual signal, whether operated by interlocking apparatus or not, and for connection with switch-stands or draw-bridges, or for protecting trains at stations, where no other signal is provided. It is claimed to be so constructed that the power required to operate it is in no case a serious consideration.



THE DELANCEY BALANCED VALVE, NEW YORK, LAKE ERIE & WESTERN RAILROAD.

the experiments which had been tried in the past were referred to and the latest inventions commented on.

In the afternoon the members visited the improved sewerage works of the city on Moon Island, and on their return were entertained at a dinner at the Parker House, tendered the Society by the city of Boston.

After the dinner a short session was held, at which one paper was read on "The Commercial Rating of Boilers by Horse Power," and was written by Professors W. P. Trowbridge and C. B. Richards, and read by Professor Richards. The argument was in favor of doing away with the uncertain definition of horse power and introducing as an element in the calculation of the power of boilers the consumption of fuel. The points made were sharply criticised by Mr. George H. Babcock and Mr. William Kent. They defended the old horse power unit, and endeavored to show the uselessness and uncertainty of the new element proposed to be introduced.

On the third day, at the morning session held, discussions were had on these questions: Can condensation be diminished in the cylinder of a steam engine by the use of a non-conducting lining of glass, porcelain or other similar material? What is the best method of determining approximately the economic efficiency of small steam engines, without expensive appliances and preparation? What is the best kind of stuffing boxes and packing for pneumatic pressure, for moving parts (reciprocating or rotary), and for joints? What metal or alloy can be substituted for steel in springs for watches, cars, wagons, etc.? Is aluminium or aluminium bronze available? What is the best place for the dome on a locomotive boiler? Are descending smoke flues admissible from boiler to base of chimney stack? What is the best method of burning anthracite culm of poor quality? What is the best method for drilling holes in plate glass? Is there anything better for true holes than a copper tube and emery? Standard taper for bolts in locomotive work; also for dowels and pins. Effect of internal strain in hardened steel. Papers were also read on "Twist Drills," by William Thorne, of Philadelphia; "Rapid Transit and Elevated Railroads," by F. E. Galloupe, of Boston and "The Basic Bessemer Process," by T. Eggleston, of New York.

At the afternoon session the first paper was on "The Crystallization of Wrought Iron," by William Hill, of Collinsville, Conn. A discussion followed on the subject, in which Prof. T. Eggleston, Secretary Hutton, Mr. R. H. Thurston, Mr. John T. Hawkins, Mr. W. F. Durfee and others took part. Mr. George M. Bond, of Hartford, then read a paper on "Standard Pipe and Pipe Threads." The paper was discussed in an instructive manner by Messrs. George Schuhmann, of Reading, Pa., Frederick Grinnell, of Providence, William J. Baldwin, of New York city, and William Kent, of New York city. Mr. Baldwin said that an agreement between the English and American manufacturers would be of advantage to the Americans in the South American markets, for the first purchases had been made in England and the people did not like to buy pipes and fittings that did not match those they already had. If the

Americans could offer piping that matched with the English, they could extend their field. Mr. Kent moved the appointment of a committee, to be named by the chair, to consider the whole subject, confer with pipe manufacturers and pipe users, and report at some future meeting. The motion was adopted without opposition. President Holloway appointed as the committee Messrs. Frederick Grinnell, of Providence, George Schuhmann, of Reading, Penn., William J. Baldwin, of New York city, B. H. Warren, of Boston, and George M. Bond, of Hartford.

Professor Thomas Eggleston, of New York city, from the Committee on Uniformity of Tests, reported progress and asked for further time. Mr. Wilfred Lewis, of Philadelphia, read a paper on "Experiments in the Transmission of Power by Gearing," made by Messrs. William Sellers & Co., Philadelphia. The experiments were carefully and scientifically made, and gave some interesting results. Mr. Henry R. Towne expressed his appreciation of the value of the paper, and President Holloway joined him in commendation. Secretary Hutton read extracts from the printed paper of Mr. William Cowles, of New York city, on "Improvement in Ferry-boats," and after a few announcements the meeting adjourned.

In the evening the members attended a reception tendered them by the Boston Art Club at its club-house.

On the following day the members went by special train to Lawrence, where several of the large mills were inspected, and a short session was held, at which the routine business was concluded, and the meeting closed.

The Delancey Balanced Valve.

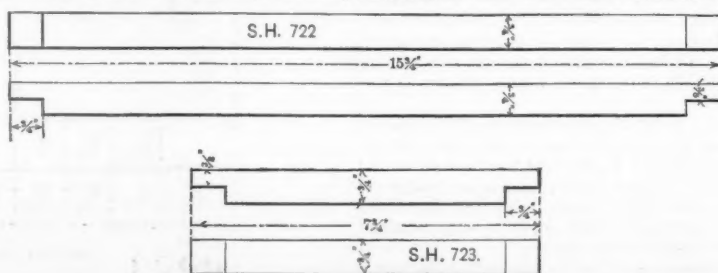
The accompanying illustrations represent a form of slide valve which is extensively used on the locomotives of the New York, Lake Erie & Western. Mr. F. M. Wilder, the Superintendent of Motive Power of that line, has kindly

placed at our disposal figures relating to the performance of the valve in actual work, and a summary of these results will be found herewith.

Like the majority of so-called balanced valves used on locomotives, this valve is not actually "balanced," that is to say, it is not so arranged that the pressure at all times is exactly equal on the two working faces. It is, correctly speaking, a valve which is relieved of a great portion of the pressure on the back. The term "relieved valve" has not come into general use, and therefore the expression balanced valve continues to be used, in cases where it is not strictly correct.

The steam-tight joint at the back of the valve is made by means of four rectangular strips, 3/4 in. square in section. These strips are placed in corresponding grooves planed in the back of the valve. These grooves are shown at S H 721, in the plan of the back of the valve in the lower right-hand corner of our general view. The short strips are shown in plan and side elevation in S H 723 and the long strips in S H 722.

It will be seen that at the corners these strips are halved into one another, in the manner known among car-builders as "a ship lap." The strips are not fastened together in any way, but the pressure of the steam holds the strips together in a rectangular frame, which has a sliding fit in the grooves in the back of the valve. Several small screws are tapped into the bottom of these grooves. Light series elliptic springs formed of a single piece of 5/8 by 1/8 in. steel keep the strips up to their work. The ends of these springs bear against the heads of the small screws mentioned above, and are thereby

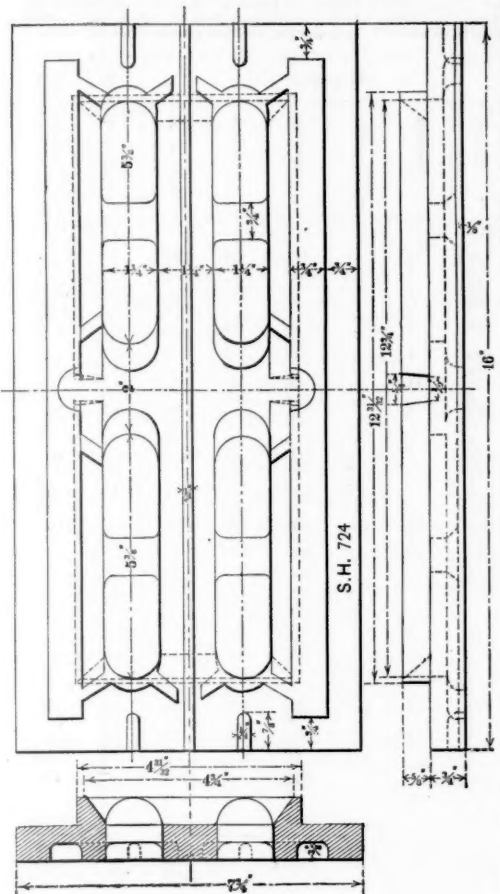


Details of Strips.

THE DELANCEY BALANCED VALVE.

kept in position. Two springs are placed under each long strip and one strip under each short strip.

The crown of the valve is cut away as shown in the longitudinal section of the valve and valve chest in the upper left-hand corner of the general view. A plate fits into this aper-



Detail of Balance Plate SH 724.

THE DELANCEY BALANCE VALVE.

ture and moves to and fro with the valve. An inverted plan, side elevation and inverted cross section of this crown plate, SH 724, is given in detail. These views show the arrangement of the grooves for the distribution of the steam and lubricating material.

The top of this plate bears against an adjustable plate fixed in the steam chest. This plate has feet at the four corners, so that the pressure of the steam on the top of the plate does not come upon the valve, but is transferred directly to the cylinder. The plate is kept firmly in position by means of the pinching screws tapped through the steam chest cover. When wearing surface of the plate or the adjustable crown of the valve SH 724 requires refacing, the same amount is taken off the feet of the plate, lowering its rubbing surface to correspond.

From the foregoing description, it will be seen that the strips have simply to maintain a steam-tight joint, and that there is no wear on the top of the strips, as the crown plate 724 moves with the valve. The under side of this plate is

provided with lips which fit against planed surfaces in the cavity of the valve, and it is evident that the valve drives the plate 724 by means of these lips. As the strips are thus relieved of all wear on their top surfaces, and as they have practically no backward and forward side strain thrown upon them, they are little exposed to wear, and if once fitted up tolerably steam-tight should remain so for a great length of time.

The trouble with all balanced valves on locomotives commences when the throttle is shut. The dust and cinders in the smokebox are sucked down the blast pipe and cut the best devised balancing arrangements. To meet this difficulty, air valves are usually placed in the steam chest, opening inwards and admitting the atmosphere whenever a vacuum is formed in steam chest. This arrangement mitigates the evil, but the dust and cinders still give trouble, and a slightly modified form of valve has been designed to still further shield the working faces of the balancing arrangement. This latest improvement in the valve is shown in cross section in the lower left-hand corner of the general views. The valve has an inner crown, only cut away enough to allow any leakage of steam past the strips, etc., to pass into the exhaust cavity. As ashes can only enter the valve chest from the exhaust cavity, this crown forms a barrier to their passage into the mechanism of the valve.

The designer and inventor, Mr. John Delancey, is an engineer on the New York, Lake Erie & Western. The valve has been in service some years upon the Erie, and has been tested in different ways. There are now in service some 70 locomotives equipped with this valve. It has been improved from time to time, one of the latest improvements being the application of the plate SH 724 to the top of the valve, so that it slides freely and easily upon the plate SH 725. A further improvement has been made in the valve by putting in a crown, as already explained, to keep out dust and ashes.

The object of this improvement is to keep away from the plates as much as possible the cinders and grit which is naturally sucked into the cylinders when the engine is running shut off, as with every revolution there is a slight suction through the valve into the cylinder and out again.

This is unavoidable, and has a bad effect upon the packing of the balance valve; but by putting in the inside rib, as shown in the cut, it is prevented to a great extent.

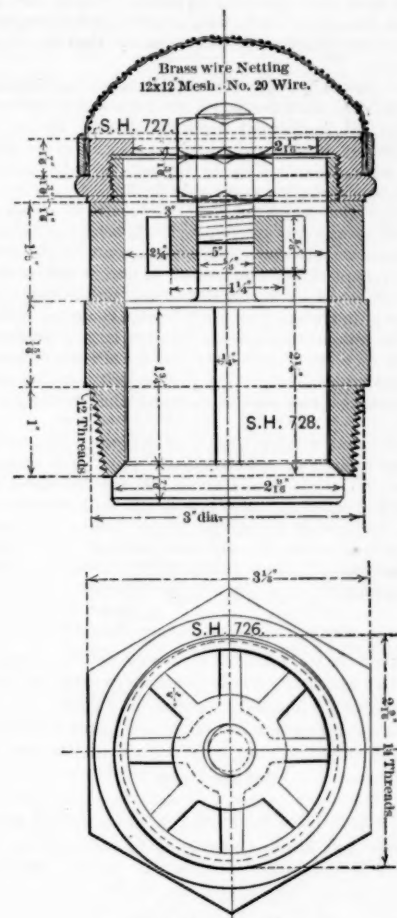
The performance of some of these valves is given below. The engines run first in, first out, with change of engineers, etc., taking their chances each day. The highest mileage made without facing was 82,147 miles; the next, 72,264; and then 69,912; 68,035; 65,405; 63,403; 56,485; 55,323, etc., in regular order. Some of these figures are very remarkable. When engine 87, for example, first came out of the shop she ran 53,124 miles without facing. After facing she ran 68,035, and is still running in the service, having 40,661 miles to her credit.

These engines are worked under high steam pressure, carrying 140 to 145 lbs., and have to be worked very hard drawing fast passenger trains.

The valve is very nearly perfectly balanced, and the engineer is enabled to notch the engine up or down on the reversing gear with very slight exertion. The additional cost of this valve fitted up complete with the relief valve upon the steam chest, and all additional changes over the common slide valve is about \$30; that is, where the valve is fitted up properly, a number at a time, to proper templates, in a shop where the best methods are used for doing the work.

The lessened power required to drive the valves is shown in the diminished wear of the valve gear, Mr. Wilder informs us, is very noticeable, and the engines that have these valves have required very little, if any, work done to any of the gearing, as it is practically not worn at all. There has been no case of break down, heating of eccentrics or anything of the sort, and the saving on the gearing alone is a large item in favor of the use of a balance valve.

The accompanying table gives the mileage run by the standard passenger engines from the time when the valves were first applied to the time when they were first faced, and it also gives the mileage between each subsequent facing. The valves were all first applied between January and July, 1883, and on Sept. 1, 1885, only 10 valves, out of the 60 at work had been so worn as to need complete renewal.



Steam Chest Air Valve.

THE DELANCEY BALANCE VALVE.

It appears that since the valves were applied the engines have run 3,158,153 miles, and 268 individual valves have been either refaced or entirely renewed. This may be reckoned as equal to 134 pairs or sets of valves. Therefore the average mileage between refacing or renewal is at least 3,158,153 or = 23,561 miles.

As all the valves were in running order on Sept. 1, when this record closes, it is evident that this average mileage will be increased. In fact, the average mileage from the last facing to Sept. 1 is slightly over 25,000 miles, and the recent improvements will, in all probability, considerably increase the durability and mileage of the valve.

Such complete figures show more than any number of vague phrases the merits of this device, and should enable any one to figure out for themselves the savings to be effected by the adoption of this method of lessening the pressure on the wearing surfaces of the slide valve and valve face.

Mileage made by Locomotives between Facings of Delancey Valves.

Engine Nos.	First facing.	Second facing.	Third facing.	Fourth facing.	Fifth facing.	Sixth facing.	Seventh facing.	Eighth facing.	Ninth facing.	From last facing to Sept. 1st.	Number of single valves renewed or re-faced.	REMARKS.
80	16,208	4,484	7,669	9,340	11,726	7,695				20,420	12	
81	20,185	10,791	6,50	5,844	17,512	18,270	11,898	11,862		18,160	17	New R. H. valve, May 4, 1885.
82	10,339	3,380	9,546	7,468	7,840	6,996	9,676	15,599		7,187	10	
83	6,632	12,891	7,671	5,766	105	30,637	10,458			5,546	14	
84	16,375	12,934	11,565	9,596	3,066	11,358	14,757	6,339	7,100	18,373	18	
85	65,405	30,613	36,351							14,718	6	
86	63,403	31,636								56,485	6	New valves, Oct. 2, 1884.
87	53,124	68,035								40,661	4	
88	28,639	19,072	61,771							15,304	6	
89	69,912									21,243	2	
90	42,905	28,024	12,918	41,479	16,669					34,372	11	R. H. valve, faced May 9, 1885.
91	11,144	2,493	14,572	1,115	24,947					16,088	10	
92	34,714	29,806								55,323	5	R. H. valve, faced July 15, 1885.
93	47,524	18,889								48,951	4	
94	31,099	29,176	20,515							21,966	6	
95	31,852									17,909	2	
96	16,203	17,217	4,746	5,685	10,532					18,382	10	
97	5,395	8,279	5,980	5,178	7,811	2,945	4,934			25,330	15	New valves June 25, 1885.
98	24,642	12,585	17,279	6,741	41,759					16,470	10	
99	37,540	13,520	16,267							46,831	7	R. H. valve, faced June 20, 1883.
100	72,264									31,669	3	" " 15, 1883.
101	18,071	9,978	23,068	28,234	9,193	6,661	12,474			4,656	15	
102	82,147	13,720	10,085	15,240						6,584	8	
103	35,268	36,953								43,056	6	
104	26,519	13,934	10,854	7,694						25,410	5	
110	36,810	24,973								21,575	4	
111	20,573	4,310	5,291	13,538	12,021	8,338				7,770	14	New valves, July 23, 1885.
112	15,110	26,849								25,305	4	
113	25,573	18,123	21,351	10,408						7,703	9	New valves, July 10, 1885.
114	48,167	21,004	13,061							59,020	6	
Total...	1,021,734	525,649	322,803	173,333	103,184	92,929	64,107	33,800	7,100	752,426	268	
Average	34,058	19,468	16,140	11,555	13,509	11,616	10,090	11,267	7,100	25,081		

Contributions.

American and English Steam Excavators.

Office of the Osgood Dredge Company,
ALBANY, N. Y., Nov. 16, 1885.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In these days of keen competition between English and American machinery, American manufacturers cannot afford to pass without notice such an article as that on English excavators in your last issue. This paper, prepared for the (English) Institution of Mechanical Engineers, published in *Engineering*, and reprinted in your columns, should describe some new and original design, or should give some hitherto unattained results, to warrant such extended notice.

On the contrary, the device therein described is the first and oldest of its kind, patented in America years ago by J. C. Osgood, and in principles of operation is identical with machines built by him over 30 years ago, drawings and cuts of which are in our possession.

With the single exception of substituting iron for wood, it is not one step in advance of the earliest American excavators in any of its essential parts.

To compare it with the present style of American excavators, take the six different machines advertised in your paper, which include the best.

Each and every one of these possesses in design or construction some improvement on, and advantage over, the English machine in one or more of the following vital points: Quick and powerful control of the dipper in all positions, speed and certainty of swinging, adjustment of height of crane, adaptability to transportation, application of power, ease of handling, proportion of strength to weight, provision for strains,

etc., etc., and, with one exception, the cost is but little or no more.

Any comparison, as to daily capacity, depends so much on the capacity of the crew and relative hardness of digging as to be chiefly a comparison of men and management. Yet the fact that the American machines carry slightly larger dippers, some of them two yards, and swing more quickly, some of them delivering three dippers per minute, and none less than two, must result, with equally good management and in similar banks, in greater capacity than the English excavator.

This is proved by the records of the actual performances of the different machines, which run from 500 or 600 cubic yards per day, in material requiring blasting, up to 1,800 yards per day, in sand and gravel, and in spite of the higher cost of labor, show from one to two cents per cubic yard less than for corresponding material in the English table.

Its reputation proves that the English machine is well built and reliable, and does good work; but in behalf of American manufacturers and American achievements in this line, I protest against allowing this report of design and performance to go on record as the best to date unchallenged, especially at a time when, in so many foreign countries, new and extensive railroads are about to make so large a demand for the best excavators; and I call upon American builders to make and support their claims of superiority, and on American papers to spread and press these claims before all the world.

I have stated nothing that I cannot prove by drawings, machinery, book, or correspondence, some of it ours and some of it our friends and rivals. If any one wishes these proofs, or is sufficiently interested in the subject to ask for details, they are at his service so far as we are concerned, and I have no doubt the other manufacturers of excavating machinery are as ready, as I know they are able to furnish an equal quantity of unimpeachable testimony.

JOHN K. HOWE,
Secretary Osgood Dredge Co.

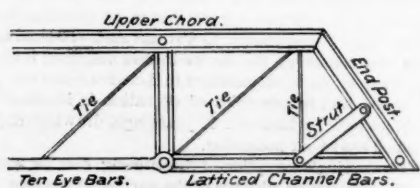
[The article to which Mr. Howe refers makes no claim to superiority over American or any other excavators for the machine illustrated. In fact, it hardly discusses construction at all, devoting only a few lines to it, and simply saying that "since its introduction the machine has been much improved and strengthened;" but what it does do—and what was one particular reason for republishing it—is to give an admirably clear and detailed description of precisely how the machine is worked in practice, and precisely what results in quantity and cost have been obtained, under varying conditions of practice. This kind of definite and positive information is what railroad men like to get hold of and railroad papers like to publish, and nothing will afford us greater pleasure than to publish still more of it, as our correspondent suggests. We have reason to believe that a claim of superiority for American excavators can be supported by adequate evidence, and now is a favorable time for presenting such evidence. Without an equally careful presentation of the latter, foreigners at least cannot be expected to believe in the former. The best that English practice in steam excavators can show is no doubt presented (and probably for the first time in as definite shape) in the paper referred to. A comparative discussion will, therefore, have something definite to start from, and no one need "call upon" us to publish any properly supported and presented evidence of better practice or results, in this country or any other, for we shall be only too happy to do so.—EDITOR RAILROAD GAZETTE.]

A Question in Bridge Construction.

NAPANEE, Ont., Oct. 23, 1885.

TO THE EDITOR OF THE RAILROAD GAZETTE:

The sketch herewith shows some peculiarities in bridge construction lately erected on the Canadian Pacific Railway. I am unable to see wherein the merit of the short strut running from the end of the first panel to the end post and at right angles to it comes in, and would like very much if you would point out what useful function it fulfills. As it has been designed by no less eminent an engineer than C. Shaler



Smith, I am satisfied it must be an improvement, but am unable to analyze the strain in such a way as to find what it really does do, unless it acts as a stiffener to the end post and first panel.

M. J. B.

["M. J. B." has guessed the reason, which would seem not very obscure, in the last line of his letter. It in effect cuts the long compression member into two parts and affords the same strength with a lighter section, but this would be the case to a sufficient extent to justify the strut only with comparatively long compression members.—EDITOR RAILROAD GAZETTE.]

The Progress of Interlocking.

TABLE NO. I.

INTERLOCKING MACHINES ERECTED BY THE UNION SWITCH AND SIGNAL CO. up to date of list published in the Railroad Gazette of Sept. 19, 1884.

[In the column headed "System," "S. & F." means Saxby & Farmer, and "T. & B." Toucey & Buchanan. In the column headed "Electric locking," ** means that the Sykes apparatus is used. Names of railroads in italics are those which have added new interlocking works during the past year, as shown in Table II., since the date of this table, which is condensed from the much fuller table published last year. Names of roads starred, * indicates electric block signals also; **, with electric and pneumatic block signals.]

RAILROAD.	No. of apps.	SYSTEM.	Number of					Electric locking.	Equit. extra S. & F. levers.
			Lever.	Space.	Space lever.	Signal.	Switch.		
*Boston & Albany	9	S. & F.	158	9	7	101	54	41	7
Baltimore & Ohio	2	"	28	8		12	17	6	0
*Baltimore & Potomac	1	T. & B.	10			7	3	1	0
Boston & Lowell	1	S. & F.	56	8		47	31	22	0
Chicago, Milwaukee & St. Paul	1	"	6	2		5	3	1	1
Cleveland, Col., Cin. & Ind.	3	T. & B., S. & F., Hydraulic	58	2		48	19	17	8
*Chicago, St. Louis & Pittsburgh	1	S. & F.	19	1		11	6	6	1
*Eastern	12	Stevens	14			11	3	2	2**
Chicago, Burlington & Quincy	5	S. & F.	70	14		69	35	23	5
Chicago & Grand Trunk	1	Pneumatic	8			14	8	8	1
*Fitchburg	2	S. & F.	46	6		21	35	12	2
Grand Rapids & Indiana	1	Stevens	6			4	4	4	0
Ind. Union	1	Pneumatic	4			8	4	4	1
*Junction (Philadelphia)	1	S. & F.	39	7		22	15	9	1
Long Island	7	"	92	13	9	67	28	13	1
Lehigh Valley	1	Pneumatic	4			9	5	5	1
Lake Shore & Michigan Southern	1	"	10			15	18	18	1
*Michigan Central	1	"	10			15	10	10	1
Manhattan	14	S. & F.	184	32		164	118	65	0
*Northern Central	1	"	19	1		13	4	2	0
New York Central & Hudson River	21	13 S. & F., 1 T. & B., 8 Stevens	283	10	17	193	125	60	20**
New York, New Haven & Hartford	1	S. & F.	10			4	2	2	Bell
*New York & New England	1	Stevens	28		4	12	19	3	1**
N. W. Jersey Central	5	Draw-bridges				20			0
New York, Woodhaven & Rockaway	3	"				12			0
*New York, West Shore & Buffalo	2	S. & F., Stevens	15	5		13			1 (S. & F.)
New York, Ontario & Western	64	Stations	128			128			0
*Old Colony	1	S. & F.	8			8			1
Philadelphia & Reading	1	"	7	1		4	2	1	0
*Pittsburgh, Cincinnati & St. Louis	1	"	6			3	2	1	0
*Pennsylvania—Main line	16	14 S. & F., 2 Pn'tic	435			283	190	134	30
" " P. W. & B.	1	S. & F.	8			6	2	2	0
" " New York Division	11	"	174	31		103	77	36	0
" " Amboy	2	"	25	3		15	11	6	1
" " Schuylkill	1	"	12			8	4	4	0
*St. Louis Br. & Tun.	3	Hydraulic	106			141	59	59	2**
Shenandoah Valley	1	S. & F.	8			8			0
Troy & Greenfield	2	"	12	1		10	3	2	1
Union Stock Yards	1	S. & F., Stevens	6			14			0
Total last year	195		2,112	168	37	1,638	918	582	54
Added to date of Table II.	32		547	94	13	489	235	108	16
Increase per cent.	16.4		26.0	58.4		29.8	25.6	34.0	31.9

In addition to the above, our tables last year showed six sets of interlocking apparatus which had been erected by the Pennsylvania Steel Co., as follows: Chesapeake & Ohio, New York, New Haven & Hartford, Virginia Midland and Richmond & Allegheny, Pittsburgh, Cincinnati & St. Louis, Philadelphia & Reading and Philadelphia, Wilmington & Baltimore, and the National Interlocking Switch & Signal Co., two sets on the Long Island; the names of roads in italics being those which are also represented in the above lists, Tables I. or II., and those in Roman type, those which have no other interlocking apparatus in use.

BLOCK SIGNALS.

Of the roads represented in the above table or in Table II., 16 roads (indicated by a * prefixed to their name) had the Union Switch and Signal Co.'s electric block signals in use on more or less of their line (three of them, indicated by a

double ** prefixed to their name, had the sections of the same company's pneumatic block signals as well); and 11 roads—viz., the Boston & Providence, Connecticut River, the Cincinnati Southern, the Chesapeake & Ohio, the Great Western of Canada, the Louisville & Nashville, the Missouri Pacific, the New York, Providence & Boston, the Providence & Worcester (this line the only one equipped for its whole length), the Pittsburgh, Fort Wayne & Chicago, the Philadelphia, Wilmington & Baltimore, and the West Jersey—had the electric block signals without any interlocking. Considerable additions to this last year's list have been made in the past year which we are not yet able to present. The aggregate last year was:

	No. of blocks.	Miles, single track.
Electric block signals	423	334 3/4
Pneumatic " "	72	53
Total	495	387 3/4

Correspondence on the Proposed Brake Tests.

The Eames Vacuum Brake Co., which manufactures an automatic vacuum brake, recently made the following inquiries of Mr. S. W. Rhodes, Chairman of the Master Car-Builders' Committee, in reference to the following provision in the brake tests to be made next month: "After the December trial the brakes will be put into general service, receiving only ordinary repairs, a careful record of the cost of which will be kept. In May, 1886, the cars will be called in, and, without being prepared for trial, the December tests will be repeated."

"As you are aware, the brakes manufactured by this company are operated by an ejector which is placed upon the locomotive. Without this ejector the brakes are inoperative. Suppose this company should furnish 50 cars according to the terms of your circular, am I to understand that after the test of Dec. 14 these cars will be kept together, and used with engines fitted with our ejector, or is it meant by the words, 'the brakes will be put into general service,' that the cars will be separated and used in the general freight service of the road irrespective of the fact that they require to be used with properly equipped engines? Of course, if the latter be meant, our brake would be simply out of service from the time the cars left the engine fitted to operate them, until they were called in for the trial test in May next. It is obvious that such a proceeding would furnish no information in respect to the working of our brake, or the cost of its maintenance, in actual, continuous and regular service during the six months. With 50 cars fitted with its equipment, this company believes itself able to demonstrate that the brake it manufactures is as quick, reliable and effective as any in stopping trains; that its release is instantaneous, and its cost of operation (particularly respecting the use of steam and the consequent fuel, and the use of oil), and its cost of maintenance (in regard to repairs and replacements) are substantially less than with any other equally effective brake.

"This company also believes that a proper trial will demonstrate that its brake possesses many, what I might call negative qualities, which are of exceeding importance; as for instance, that it will not require drainage; will not freeze; will not stick on, involving an unnecessary expenditure and waste of power in dragging the brakes and injuring the wheels by sliding. Other advantages which the limits of this letter will not permit me to state are claimed for the Eames brake.

"It is evident that these advantages can be satisfactorily

demonstrated only by regular and continuous service, and my object of writing you is to ascertain whether this is contemplated by the terms of your circular.

"It is perhaps rather early to make a suggestion which savors so much of detail thus early in your proceedings, but it seems to us that the amount of fuel consumed in the operation of the respective brakes is a question the importance of which cannot be overlooked. It is a distinct claim of ours that the use of a pump to maintain a high degree of pressure throughout a long train involves a very considerable expense of fuel—amount to an appreciable and substantial percentage of the total consumption of the engine—as compared with the use of our ejector, and we submit that this question should be prominently and effectively treated in your tests. The same thing is true, though in a very much less degree, of oil. We respectfully suggest that these matters should have the consideration to which they are entitled."

Mr. Rhodes' reply was to the following effect, and from it will be observed that the Committee stand ready to concede for good reason, as we suggested would be the case, the privilege of having the brakes in use during the interval between the tests on some other road than the one specified:

"As to whether the automatic freight car brake test contemplates the constant use of the brakes during the time intervening between the December and May trials, the Committee does contemplate this in so far as it is practicable. They also fully realize that some devices may present themselves with which this requirement would be quite impracticable without going to very great expense, an expense quite beyond the means of the Committee and probably even the means of any brake company. Your case would likely be one in point. I do not see how the Committee can arrange to keep the brakes you describe in constant service on the lines of the Chicago, Burlington & Quincy Co. In case you wish to enter the test, however, the Committee, no doubt, would consider your admission to the December test, and owing to the peculiar construction of your device, might consider allowing your company to obtain the service required on some line where it would be practicable to get it and still come into the May test. This question, however, is one that would have to be laid before the Committee in case your company should desire to compete.

"The question would naturally arise as to whether such a concession would be doing justice to other competitors who might not have the same excuse for not leaving their cars in service on the lines of the railroad company above-named."

To the above the following response was made, which, it is to be hoped, does not mean that anything will prevent the

The Progress of Interlocking.

TABLE NO. II.

LIST OF INTERLOCKING APPARATUS ERECTED BY THE UNION SWITCH AND SIGNAL CO., PITTSBURGH, PA., DURING THE PAST 15 MONTHS, OR SINCE THE DATE OF TABLE I.

[Names of Railroads in italics are those which had apparatus in use last year at the date of Table I. Names of railroads in Roman type are those which have introduced interlocking apparatus during the past year for the first time. For further interpretation of this table, see Table I.]

RAILROAD.	LOCATION.	SYSTEM.	Number of						Electric locking.	Extra S. & F. locks.
			Lever.	Spaces.	Spare levers.	Signals.	Switches.	F. P. locks.		
<i>*Bost. & Albany.</i>	S. Framingham, Mass., Tr. No. 20	S. & F.	32	4	....	35	16	10	1	....
"	" " " " " 21	"	17	3	....	17	5	1	1	....
"	" " " " " 22	"	12	4	....	14	4	1	1	....
"	Palmer, Mass.	"	11	5	....	10	1	....	1	....
<i>Bost. & Lowell.</i>	Westfield, Mass.	"	20	4	....	22	5	3	1	....
<i>*Boston & Maine.</i>	Woburn Br. Junction.	"	11	1	....	7	4	2	1	....
<i>Beh. Cr. Chfd. & S. W.</i>	Wilmington Junction.	"	13	3	....	6	4	4	1	....
<i>Brooklyn Elevated.</i>	Phillipsburg, Pa., Bridge No. 5.	"	8	....	....	15	9	7	....	....
<i>Chic., Bur. & Quin.</i>	Fulton Ferry, Brooklyn.	"	16	1	....	19	2	2	....	....
"	Manhattan Beach.	"	3	....	....	2	1	1	....	....
"	Canal and Jeff. Sts., Chicago.	Stevens.	3	....	....	1	....	....	....	....
"	" " " " " " " "	"	3	....	....	2	....	....	....	....
"	Galesburg, Ill.	"	2	....	....	1	....	....	....	....
<i>Central Pacific.</i>	Des Moines River Bridge.	S. & F.	12	....	....	6	4	4	....	....
"	Oakland, Cal.	Pneumatic	36	....	....	37	22	22	1	26
"	" " " " " " " "	"	21	....	....	33	12	12	1	17
<i>Han. & St. Jo.</i>	" " " " " " " "	"	15	....	....	14	7	7	1	3
"	Union Depot, Kansas City.	S. & F.	68	12	2	68	31	28	....	....
"	Chicago & Alton Junction.	"	13	3	....	8	5	5	....	....
"	Harlem Junction.	"	8	8	....	7	2	1	....	....
<i>Manhattan.</i>	South Ferry, New York City.	"	10	2	....	8	8	5	....	....
"	" " " " " " " "	"	12	....	....	9	8	5	....	....
<i>*Northern Cent.</i>	Hillien Junction.	"	28	4	....	16	16	13	....	....
"	Bridgeport.	"	36	4	....	32	12	13	....	....
"	Sunbury.	Stevens.	2	....	....	1	....	....	....	....
<i>N. Y. Cent. & H. R.</i>	Hudson.	S. & F.	9	....	....	8	....	....	....	....
<i>*N. Y. & N. Eng.</i>	Hawleyville.	"	10	2	....	8	....	4	....	....
<i>*Old Colony.</i>	Medfield.	"	9	3	....	5	4	4	....	....
<i>Penn., N. Y. Div.</i>	Centre St., Newark, N. J.	"	9	3	....	6	2	1	....	....
<i>*St. P. Minn. & Man.</i>	St. Paul, Minn.	"	22	18	....	27	6	6	....	....
<i>Troy & Greenfield.</i>	Conway Junction.	"	7	1	....	4	3	2	....	....
<i>Wilmington & North'n</i>	Birdsboro, Pa.	"	16	4	....	12	7	6	....	....
Total increase since date of Table I., as repeated under that table.			497	98	2	456	214	170	13	46

* Has electric block signals also.

Since this table was sent us (Oct. 26) records of the four following additional works have been forwarded by the company (Nov. 17) which were not at the earlier date:

<i>Boston & Lowell.</i>	Montvale, Mass.	S. & F.	12	....	....	9	4	3	1	....
<i>*Old Colony.</i>	Somerset.	"	12	....	4	6	4	4	1	....
<i>*Pennsylvania.</i>	Mantua "Y" (extras)	"	6	....	3	10	1	9	0	....
<i>Lake Shore & Mich. So.</i>	Ashtabula, O.	"	20	....	4	8	12	6	1	....
Total additions in table.			547	98	13	480	235	198	10	46

making of the proposed tests between all the prominent competitors:

"We do not understand what you refer to as peculiar to our brake which renders the continuous use of our cars during the six months intervening between the December and May tests impracticable or expensive. Our position in the matter is precisely the same as the position of the Westinghouse brake, if it should enter the competition. The only difference between the two brakes, so far as this question is concerned, is that one is operated by an air-pump, the other by an ejector. The Westinghouse train brakes are inoperative when disconnected from the pump. The Eames brakes, in like manner, are inoperative when disconnected from the pump. No test can be made of either brake unless the cars are used with engines fitted with the necessary apparatus to operate it. There is therefore, in this respect, nothing peculiar nor exceptional in our case; nothing to distinguish it from the case of any brake which is operated by whatever device upon the engine.

"If your circular contemplated only the tests of December and May, we should unhesitatingly enter the lists. But it goes farther than this. It provides that the brakes shall be put 'into general service, receiving only ordinary repairs, a careful record of the cost of which will be kept.' Of course, this means that your Committee is to report upon the continuous service and cost of maintenance of each. It would be impossible to report upon the service and cost of the Eames brake during the six months unless it was in use during the time, and it cannot be in use if the cars are to be separated from engines equipped to operate them. The same reasoning applies to the Westinghouse brake, and if your position in respect to that brake is the same as in respect to the Eames brake, your tests will necessarily be silent as regards the two brakes which will unquestionably play important parts whenever a decisive and thorough examination of the question of freight brakes is made.

"If, therefore, the general working and expense of the brake during six months is to be considered a part of the test, we submit that it is only fair and reasonable to require your Committee to guarantee that the brakes shall be used in such a manner as shall exhibit its performance in both respects.

"So far from taking this position you suggest that even if we obtained the service we require upon some other road, the question would arise whether this would be justice to other competitors who had not the same excuse for not leaving their cars in service upon the lines of the Chicago, Burlington & Quincy. This seems to us to amount substantially to the statement that we not only cannot be guaranteed, but that we cannot expect, the very trial which the terms of your circular describe, either upon the road named or anywhere else. It seems to shut out as effectually as the compression brakes are shut out by your elimination of driver brakes from the permitted apparatus. It as effectually shuts out the Westinghouse brake, if the same ground is taken in respect to it, and practically leaves the field of competition to the hand brake. Probably this is not what your Committee intends, but it seems to be the logical result of its position."

THE SCRAP HEAP.

The Bluestone Quarry Accident.

At 7 o'clock on the morning of Nov. 12, an express train on the Pittsburgh Division of the Baltimore & Ohio was derailed at Bluestone Quarry, near Connellsville, Pa. The engine ran along the ties for some distance, but stopped on the road-bed. The cars broke loose from the engine, and the rear car, which was a sleeper, rolled down the bank into the Youghiogheny River. The sleeper was badly wrecked, and of the 16 passengers in it every one was hurt more or less. The other cars were not badly damaged, and no one in them was hurt. The accident took place at a very sharp curve, and

at the point where the engine left the track there is a siding leading to the quarry. It is believed that this switch was either accidentally left open or had been purposely misplaced.

A peculiar feature of the accident was the action of Mr. Van Meter, of Pittsburgh, a passenger, who, when he realized that the sleeping car had left the track, sprang at once to the heater, and bracing himself against the floor of the car, held it with both hands, and although severely burned, continued to hold it until the car came to rest at the bottom of the bank. He explained that his first thought was the danger of fire, should the heater upset, and his object was to prevent such a result.

A Horrible Death.

Thursday night of last week a ballast train on the Shenandoah Valley Railroad, reported at the time in the *Globe*, went through a trestle near Buchanan, Va., the accident being caused by the heavy rainstorm and the consequent weakening of the trestle. Four men were killed. When the train went down one of the workmen had his foot caught under the engine in such a way as to make it impossible to release him quickly. It was noticed that the stream into which the train had fallen was rapidly rising, and while one of the men went for a physician the others vainly renewed their efforts to save their companion. When the physician arrived it was seen that the only hope of saving the man's life was by amputation of his limb, but notwithstanding the entreaties of his friends and the certainty of a dreadful death, the imprisoned man refused to submit to the operation. He said he would rather die. The water finally arose so high that the man had to be held up by a companion to keep him from drowning. The doctor had all the necessary instruments for amputation. The other men implored their companion to save his life by a sacrifice of his limb, but he resolutely refused to submit. The water came to his shoulders, his neck, his chin. When the water was even with his mouth the resolute man weakened. As he uttered the words "cut it off," the water bubbled up over his mouth. It was then too late. He was drowned. A fate like this is seldom witnessed. The hearts of the stout men present bled in sympathy.—*Hagerstown (Md.) Globe*, Nov. 7.

An Attempted Fraud.

About a week ago the *Leader* exposed the attempt of an individual to defraud the Lake Shore road by representing that he had sustained personal injuries at a railroad accident at Morehouse, Ind., Sept. 23. The account came to the notice of a great many railroad officials, and in consequence Mr. O. G. Getzen-Danner, the Assistant General Counsel of the Lake Shore, has received numerous letters from officials of other roads showing that the same individual has been working the railroads systematically with the identical dodge and with varying success. His sleek address and skillfully contrived story have doubtless won him many settlements from railroad companies. Notes of inquiry from Southwestern roads indicate that he has found that field especially fruitful. In Cleveland the fraud assumed the honest name of John Camp, and with the inimitable candor and plausibility of his story won over the officials to the belief that he had sustained the injuries. A closer investigation in the legal department, however, revealed the fact that the claimant had fictitious credentials from officials of Madison County, Ark., to which he had affixed a counterfeit seal. A letter just received from Mr. J. H. Bohannon, Clerk of that county, very emphatically denounces and condemns the fraud perpetrated upon his office. Camp is suffering from a long-standing case of hydrocele, which he claims was caused by the accident. From Cleveland he was furnished with a pass to Detroit to consult the General Counsel of the road, but though more than a week has elapsed, has failed to present himself to that official. For the benefit of other roads not yet defrauded, he deserves to be passed around. He is de-

scribed as being about 6 ft. in height, rather spare, aquiline nose, blue eyes, dark hair, inclining to red or brown; thin, unkempt full beard and mustache of same hue, and when he presented himself at the offices of the Lake Shore Co. he was seedily dressed in a dark blue suit and long dark overcoat, and wore a silk hat of old style and in bad order. His general appearance is that of a rustic sharper, of rather easy manner and confiding disposition.—*Cleveland (O.) Leader*, Arrest of a Defaulter.

W. J. Purdy, formerly agent of the New York Central road at Batavia, N. Y., absconded in September, 1884, being a defaulter to the amount of about \$1,800. Purdy went to Canada, where he remained for some time, but at last went west, and was arrested a few days ago in Denver, Col. His arrest was due to Mr. W. H. Lee, Superintendent of the Fidelity Department of the Fidelity & Casualty Co., of New York, in which company Purdy had been bonded. Mr. Lee had watched the defaulter's movements from the time he first left Batavia.

She Deserved a Pass.

A few days ago a neatly dressed, fresh-looking woman, about 30 years of age, applied to Harry Foster, the Erie ticket agent at Honesdale for information as to the lowest rate of fare for herself and family to Warren, Pa.

"How many persons?" asked the agent.

"Myself and my 11 children," she said.

As soon as agent Foster could catch his breath he exclaimed:

"Eleven children! Great Scott, madam! Not all yours?"

"Certainly sir," replied the woman, evidently surprised at the agent's question and manner. "Whose would they be if not mine?"

"In the name of goodness, then, how old are they?" asked the agent, mopping the perspiration from his forehead.

"Well, sir," said the woman, after a short mental calculation, "three of them are 9, three of them are 7, two of them are 5, and three of them are 3 years old."

Agent Foster dropped into a chair as though some one had hit him with a club.

"Madam," said he, "you deserve to have a pass for 12. Come in again in a few days and I'll see what can be done."

The agent in the mean time ascertained that the woman's name was Cullen. She lived at Gale's Tannery, six miles from Honesdale. Her husband is a laboring man, and about three years ago went to Warren to work and had a short time ago sent for his wife and children. The couple had been married 10 years. Mrs. Cullen's statement as to the number and age of her children was substantiated by neighbors. She had presented her husband with 11 children at four births.

Agent Foster wrote to General Passenger Agent John N. Abbott, and gave him a statement of the case. Mr. Abbott sent back instructions at once to sell Mrs. Cullen a half-fare ticket to Warren, good for herself and her 11 little ones.—*Port Jervis Gazette*, Nov. 16.

TECHNICAL.

Blast Furnaces of the United States.

The *Iron Age* says: "We herewith present our usual monthly report as to the condition of the blast furnaces of the United States. At the earnest solicitation of those interested in the production of charcoal iron we have made a change in our reports, and instead of giving, as heretofore, quarterly reports only as to the condition of charcoal furnaces, shall give monthly statements, the same as we have of anthracite and bituminous furnaces. But four furnaces are missing from the report, all charcoal, one each from Minnesota, Texas, Utah and Oregon. These are of so little moment that the report may be regarded as complete.

In a condensed form the table makes the following showing as to the condition of the furnaces Nov., 1885:

Fuel.	No.	In blast.		Out of blast.	
		Weekly capacity.	No.	Weekly capacity.	No.
Charcoal.....	58	8,352	167	15,670	36,812
Anthracite.....	86	24,770	136	29,966	45,945
Bituminous.....	80	44,101	134	50,616	86,252
Total.....	224	77,223	437	96,252	

The only change of any moment during the month of October has been a marked increase in the number of anthracite furnaces in blast. On Oct. 1 there were 75 furnaces using this fuel reported in blast, with a weekly capacity of 20,318 tons. On Nov. 1 there are 86 reported in blast, with a weekly capacity of 24,770 tons, an increase in product of nearly 20 per cent. Three of these 11 additional stacks in blast are New Jersey spiegel furnaces, which were not included in our October report; but, though this reduces the number to 8, it has but little effect on the capacity, their total output being but 275 tons a week. There has been a slight reduction in the number of charcoal furnaces in blast, but an increase in the weekly capacity, and an increase of one in the number of bituminous furnaces in operation, with a small increase in product.

The number of anthracite and bituminous furnaces in blast at the beginning of each month of the present year, together with their weekly capacity, is as follows:

1885.	No.	Anthracite.		Bituminous.	
		Capacity.	No.	Capacity.	No.
Jan. 1.....	80	21,564	82	36,812	
Feb. 1.....	81	21,189	87	46,653	
March 1.....	86	22,889	91	46,774	
April 1.....	82	21,704	90	45,655	
May 1.....	80	20,729	95	43,397	
June 1.....	79	19,834	94	44,498	
July 1.....	81	20,444	92	43,945	
Aug. 1.....	77	20,530	86	44,845	
Sept. 1.....	78	20,190	88	42,663	
Oct. 1.....	75	20,318	88	43,234	
Nov. 1.....	86	24,770	89	44,101	

This indicates a weekly production for the year of 21,242 tons of anthracite iron and 43,871 tons of bituminous, which equals 1,104,584 tons of anthracite iron for the year and 2,281,291 tons of bituminous. These figures are somewhat under rather than over the actual make, but the indications are that the product of 1885 will be less than in 1884."

Iron Piles.

The Iron Substructure Co., of Columbus, O., has issued an illustrated pamphlet in which is described the article which the company manufactures, which is simply a hollow cast-iron pile with a solid pointed end. To drive it, a solid plug of wood is inserted in it to receive the blows of the hammer, the plug being afterward removed and used for other piles. To regulate the length of the pile after driving, a long plug of wood is inserted within it, of the desired length to permit the cap which constitutes the upper part of the pile to telescope over the lower part by any desired distance. A broad bearing plate is also clamped around the pile, after it has been nearly driven home, a little below the natural surface, the soil being removed from around it for this purpose. The plan has been in use for some years and is claimed to be very satisfactory.

Given the single pile, the piles can of course be combined in any desired way to serve as trestle-bents or piers for trusses. The use of cast-iron will be felt to be an objection, but as compared with wooden piles, with all their liability to rot, they should certainly have an advantage and the plans will at least be examined by railroad men with interest.



Published Every Friday.

EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

THE NEW TRUNK LINE CONTRACT.

We publish this week the full text of the contract which was adopted by all the Eastern trunk lines Nov. 6, last, a summary of which has been widely published heretofore, and also the full text of the organization and rules adopted at the same time, through which it is intended to carry out the provisions of the contract. The organization has not been published before, and it is important to consider it in connection with the contract, as it helps to show what it is proposed to do as well as how it is proposed to do it.

The first question that occurs is, how do this contract and organization differ from those which have been in operation in different forms for more than eight years, and which have not prevented long contests among the parties to them, and reductions of rates far below what was fair and reasonable and several times below the bare cost of doing the work? The only essential difference is that which we have stated more than once heretofore: that the Eastern trunk lines assume the responsibility for maintaining through rates, not only over their own lines, but also over the Western connections with which they pro-rate.

It is important to bear this limitation in mind. Some comments have been made on the contract which characterize it as an assumption by the trunk lines of the authority to make rates for all Western railroads, and decide how much traffic each of them may carry. But a reading of the "contract," and especially of the "organization," shows that the trunk lines do not assume to make rates alone, nor to fix the percentages of traffic which their Western connections may carry; that they call on these Western roads to help them do this; and that what they do provide is machinery for maintaining the rates and divisions which they may jointly agree upon, and announce the terms on which they will do what we may call a partnership business.

For the through freight and passenger business as actually conducted requires something more than the carriage of traffic delivered to the railroad and its delivery to the consignee. It includes (for the business covered by the trunk line contract) an agreed division of a through rate, the acceptance of through bills of lading, the interchange of freight cars, the collection and advancing of freight charges and fares. Each of several connecting roads acts for each other as its agent in certain important particulars, and the trunk lines in their contract declare on what terms they will undertake this agency, these terms being, substantially, that the value of their business shall not be destroyed by the companies for which they work.

Read in the light of the negotiations between the Eastern and the Western companies during the past ten years, the contract will be seen to provide in relation to the Western roads almost precisely what they have repeatedly asked the trunk lines to provide. As long ago as the spring of 1876, before the days of the trunk line organization, the Western roads called upon the trunk lines to cut off, so far as possible, such Western roads as should not maintain rates; and since that time they have repeated the request on various and numerous occasions. It might easily seem to one reading the new contract not familiar with the history of the Joint Executive Committee and the organizations and meetings which preceded it, that the trunk lines had suddenly and arbitrarily dictated terms to the companies with which they interchange business, when in fact they have by this contract substantially complied with the requests frequently and urgently presented by these companies. The object aimed at is the advantage of both, and so far we have not heard that the Western roads are otherwise than pleased with the plan, as they are likely to be with any which promises to prevent the enormous through business from being altogether profitless.

The position of the trunk lines is such as to give them much greater power over this traffic than it is possible for their Western connections. The trunk lines are few; the connections with which they pro-rate number more than one hundred. Joint action by the former has not been found easy, but is possible; by the latter it must always be extremely difficult, especially under an agreement which cannot be enforced by law. The lines over which passes the traffic covered by the contract form a fan-shaped system extending over an immense territory in the West, but concentrating on the Atlantic seaboard between Baltimore and Portland. Of the entire passenger and ton-mileage, probably considerable more than one-half is on the Eastern trunk lines themselves, and perhaps two-thirds of the remainder on railroads owned or controlled by them. They have a larger interest in the part of the through traffic west of them than all the independent Western roads together, and they are, therefore, attending to what is emphatically their business when they make provision for the maintenance of rates on the Chicago-Buffalo or St. Louis-Pittsburgh part of traffic between St. Louis or Chicago and the seaboard.

In most respects the new contract only provides for doing what has been done or attempted, or at least aimed at, under the old plan. The whole heart of it lies in setting apart a certain part of the business done by the several companies, and contracting that as to that the companies will never act separately, but always jointly. The making and maintenance of through rates is to be solely in charge of the new organization, and no one trunk line or freight line, still less any traffic manager or line agent, shall have any discretion as to them, further than to report facts and make recommendations. The success of the new organization will depend largely on carrying out this principle.

Much is hoped from the provision that each trunk line shall be responsible for the maintenance of rates on its connections. Heretofore, complaints of cutting of rates were made to the Commissioner and investigated by him, and through him the measures were taken to put an end to such practices. It is argued that no one can so easily discover and put an end to such practices as the trunk line over which the traffic passes. By the new contract, any such violation of the agreement is held to be the act of the trunk line which takes the traffic. The associated roads look no further than to it. It must right the wrong, whether it has been a party to it or not, and even if it is proved that it had nothing to do with it. It is held to be its duty to enforce fair dealing, so far as this traffic is concerned, on all the lines with which it does business. And the trunk lines make it one of the conditions on which they will do through business with connections in the usual manner, that the latter shall agree to maintain rates and to obey the rules that have been made to secure their general maintenance.

It will be observed that everything depends on the unanimity of the trunk lines themselves. Too much must not be expected of the agreement. If any trunk line with independent Western connections does not wish to have-through traffic profitable, as was the case for nearly a year past, nothing can be done to make it so. The business is still, and probably always must be until legislation makes it possible to enforce such contracts by law, or otherwise prevents an undue reduction of rates, at the mercy of any trunk line which has Western connections which it can compel or induce to work with it. The contract itself pro-

vides for the withdrawal from it of any party at the close of any year (except this), if three months notice is given; but probably nothing could be done to prevent it if a company should refuse to be bound by the contract at any time. The reason for believing that the contract will be enforced is that all the parties to it want it enforced; that, so far as can be seen, it will be greatly to the advantage of all of them to have it enforced, and that as the railroad system now stands it seems impossible that any company can now, or for some time to come, have any object to gain by making business unprofitable.

And for this reason the railroad war of the past twelve months can hardly be considered evidence of the inefficiency of the old plan and organization. It is true that evils arose a year ago and more which were not intended, but in the main the low rates of the past year were deliberately designed to cause losses instead of profits, because two companies felt that their whole future would be threatened if the through trunk line traffic were profitable at that time. The plan which will make a man's or a company's business profitable when he wants it to be unprofitable has yet to be invented.

There are several features in the new organization which deserve attention. The changes from the old one seem largely intended and calculated to secure promptness in action. The fundamental provision is the agreement beforehand to accept the decision of an arbitrator in all matters concerning which the companies cannot agree, without which such a combination may be rendered void at any time. The danger of paralyzing the executive by giving it more things to do than one man or company of men can fairly look into is to be obviated by dividing up the work, so that a Freight Committee and a Freight Commissioner, and a Passenger Committee and a Passenger Commissioner will finally dispose of by far the larger part of the executive work, and prepare most of the material which will come up for decision by the Executive Committee and the General Commissioner, leaving little for the President's Committee except the decision of matters concerning which no agreement can be reached below. There is also provision for an Arbitrator (or Board of Arbitration) who shall not only be permanent, but shall devote his whole time to his duties, attend all meetings, and keep himself informed of the course of business in the Commissioner's office, and its records, which in most cases form the chief part of the evidence in cases arbitrated. It has been assumed that Mr. Fink will be both General Commissioner and Arbitrator, though the alternative "Board of Arbitration" indicates that some one may be associated with him at some time, or some other arrangement made. Provision also is made for arbitrations in the Freight and Passenger Committees, by the respective commissioners, of questions which are within the final jurisdiction of these committees, and for requiring the prompt submission of evidence and arguments in cases submitted to arbitration, and for prompt decisions by the Arbitrator.

In this way an effort is to be made to obtain from the immense trunk line traffic between the Eastern seaboard and the Mississippi something towards paying interest on the cost of the railroads which carry it. There is good reason to expect that it will be successful; that through it some profit may be secured from this business. It is idle to expect, however, that by this or any other agreement a great rate of profit may be obtained from this business. Not only are the rates limited, and greatly limited, by competing water routes (so much so that even this fall, with rail rates decidedly below cost and not one-third as great as the lowest known in other countries, more than half the grain brought to New York came by water), but the traffic itself is chiefly of such a nature that it will not move at any but a very low rate. Notwithstanding the very rapid growth of this country and its traffic to us it seems very improbable that the trunk lines will ever again be able to obtain profits from this business as great in proportion to the capital invested as in many previous years, however strictly rates may be maintained. A very moderate profit is all that can be hoped for from this traffic. Large dividends on trunk lines will come, if they come at all, from a great development of local traffic. But a very large addition to the very meagre trunk line profits of last year can certainly be secured by maintaining the low rates which alone are now possible; and the whole community, and not railroad investors alone, should welcome an effort which aims to make rates more stable and uniform, as well as more remunerative, when all the industrial conditions of the country tend to prevent anything more than a very moderate profit on this particular business.

INTERLOCKING.

The table presented in another column of the interlocking works erected during the past year (and a little more) by the company which has been, so far, by much the most active in the erection of such works, shows a progress which is at once gratifying and disappointing. It shows that interlocking is certainly making steady progress—an extension of about 25 per cent. in the use of interlocking devices by the addition of 32 new interlocking systems on 17 different roads, seven of which have never used interlocking before, is not exactly falling behind—but in view of the great value of the system both as a safeguard and as an economy, in certain localities, as notably at grade crossings, it is to be regretted that the introduction is not more rapid.

There are, besides the Union Switch & Signal Company, four other companies which have erected interlocking or block signal apparatus, the Pennsylvania Steel Company, the National Interlocking Switch & Signal Company, the Wharton Switch & Signal Company, and the Hall Electric Signal Company. The progress of these latter we are not, as yet, able to report, but last year the first-named company had erected six sets of interlocking, the second two, and the other two were not reported, but so far as we are aware had erected only two or three sets, so that the works erected by the Union Switch & Signal Company amounted to nearly 95 per cent. of all those in the United States. We repeat beneath Table I., from last year's tables, the names of the roads which had those systems in use.

Bearing in mind that our lists do not include (1) additions by the Union Switch & Signal Company to the electric or pneumatic block signal lists during the past year, and (2) additions to interlocking systems by other companies than the Union Switch & Signal Company—neither of which omissions would probably make any momentous difference in the lists of roads below, or even in the aggregates of levers or miles of blocks—the present status of these safe-guards, as respects the companies which have them more or less in use, is as follows—names of roads having some system of interlocking only in use being printed in Roman type, those having electric or pneumatic block signals only, in *italics*, and those having both, in SMALL CAPS.

In the New England States.—The BOSTON & ALBANY, BOSTON & LOWELL, BOSTON & MAINE, BOSTON & PROVIDENCE, EASTERN, FITCHBURG, OLD COLONY and NEW YORK & NEW ENGLAND, all centering in Boston. New York, New Haven & Hartford, Troy & Greenfield, Connecticut River, New York, Providence & Boston and Providence & Worcester—13 in all.

Middle States.—The New York Central, the WEST SHORE, the Ontario & Western, the New York, Woodhaven & Rockaway, the Manhattan and Brooklyn Elevated, the Long Island, the New Jersey Central. Around Philadelphia: PENNSYLVANIA, Reading, WILMINGTON & BALTIMORE, JUNCTION, West Jersey, Lehigh Valley, NORTHERN CENTRAL, Beach Creek, Clearfield & Southwestern. Around Baltimore: Baltimore & Ohio, BALTIMORE & POTOMAC, Wilmington & Northern—19 in all.

Southern States.—Shenandoah Valley, Virginia Midland, Richmond & Allegheny, CHESAPEAKE & OHIO, Louisville & Nashville, Cincinnati Southern—6 in all.

Western States.—Eight roads with termini at Chicago, namely, the Chicago, Milwaukee & St. Paul, the Chicago, Burlington & Quincy, the Chicago & Grand Trunk, the CHICAGO, ST. LOUIS & PITTSBURGH, the Pittsburgh, Fort Wayne & Chicago, the Union Stock Yards, the Lake Shore & Michigan Southern, the MICHIGAN CENTRAL. Elsewhere west of Pennsylvania: the PITTSBURGH, CINCINNATI & ST. LOUIS, the Cleveland, Columbus, Cincinnati & Indianapolis, the Grand Rapids & Indiana, the Indianapolis Union, Cleveland, Columbus, Cincinnati & Indianapolis, Grand Rapids & Indiana, Indianapolis Union, ST. LOUIS BRIDGE & TUNNEL, Hannibal & St. Joseph, Missouri Pacific, ST. PAUL, MINNEAPOLIS & MANITOBA, Central Pacific—17 in all.

In Canada.—Great Western.

This shows a pretty fair distribution of such works throughout the country, aggregating as follows:

	Using interlocking only.	Using automatic block s. only.	USING BOTH.	Total.
New England.....	3	4	6	13
Middle.....	12	1	6	19
Southern.....	3	2	1	6
Western.....	10	2	5	17
Canada.....	0	1	0	1
Total companies....	28	10	18	56

It may be inferred from the total of 56 that there are probably some 60 or more companies using some form of interlocking or automatic block signals, the two serving in some measure, although only to a very limited extent, as substitutes for each other, on the parts of the line where the need of something of the kind is most keenly felt.

As these lines are almost all of them, excepting a few city or local lines, lines of the first class, controlling in the aggregate an enormous proportion of the mileage of the country on which the use of any kind of such apparatus could reasonably be expected, it cannot be said that any considerable number of roads which ought to be considering the matter are neglecting to look into it in a practical way, and the presumption is fair that the introduction of such ap-

paratus is now being pushed, and will be pushed, as respects yards at least, with considerable rapidity.

On looking over the list, however, especially in connection with the lists we published Sept. 19 of last year, where the exact location of each interlocking apparatus is given, one striking fact is apparent: The interlocking apparatus is used almost exclusively in large yards or at junctions near large cities, and only to a very limited extent at crossings. In part this is natural enough. There is no real operating difficulty involved, on most roads, in the stops required at grade crossings, but only inconvenience and expense; whereas many, if not most, of the yards now operated by interlocking could hardly be operated at all, with the traffic they now have, without it. Nevertheless, except where the traffic of yards is very great, so that interlocking is absolutely indispensable, the direct advantage to revenue is not great, whereas every grade crossing, on a line of any considerable traffic, involves directly a large annual loss, at the lowest estimate of the cost of a stop, which can be avoided by comparatively simple interlocking systems, and when—as is the case on very many, if not most, roads having many grade-crossing stops to make—less cars are hauled to a train than otherwise could be, the economy of avoiding the stop is very great.

To reach this conclusion we need not adopt any of the wild estimates which figure out the cost of a stop at anywhere from one dollar up, and which refute themselves. An interesting example of this fallacious style of reasoning, as rehearsed in a paper in refutation of it by Mr. W. P. Shinn, was published in the *Railroad Gazette* of Jan. 5-12, 1883; but in the discussion of that paper, Mr. Octave Chanute correctly summarized, so far as we can ascertain, the general view of those who have studied the matter intelligently by saying that the usual estimates of the cost of a stop were from 30 to 60 cents, according to the weight of the train. Mr. Chanute said, in addition, that 60 cents was the accepted estimate on the Pennsylvania Railroad.

While this latter may be, and we suspect is, over-large for anything but the very heaviest or very fastest trains, and while even the smaller figure may be over-large for light trains, an estimate of 40 cents per stop for average trains on roads doing considerable through business will hardly be regarded as excessive, and at this rate the cost per year of each train per day stopping at the crossing is $365 \times 40 = \$146$ per year. If therefore there is an average of ten trains per day each way for each of the roads which cross (and the average at grade crossings would probably be more rather than less than this), we have $\$146 \times 10 \times 2 \times 2 = \$5,840$ as the annual loss to both roads from the fact of the existence of such crossing.

Now, what is the cost of saving this loss? It will vary more or less, of course, with locality, and in still less degree, no doubt, with the system adopted; but the variation in the latter respect is not important, and the outside limits for a complete system of interlocking switches and signals for either single or double track, by one system of approved excellence, may be stated to be from \$2,500 to \$4,000, averaging about \$3,000. This includes eight signals, two for each track, four derailing switches, one for each track, and (for a separate sum of about \$250) electric locking apparatus, which renders it impossible to change the signals after a train has once passed the first signal until it is over the crossing. One man only is required to attend to the signals, as is required without interlocking. The cost of the building and of laying the switches is a small additional expense.

The sum saved, therefore, or even the half or the quarter of it, is far beyond the additional expense of thoroughly protecting a crossing at which 40 trains stop daily so that no stop at all need be made, however large the allowance (within the bounds of reason) for interest and maintenance. At crossings where many more stops are made than are assumed above—and not a few such exist on the lines which have interlocking apparatus only in yards or at junctions—it would be hard to show as great financial inducements for erecting interlocking at any but the most overcrowded and important yards.

The case in favor of avoiding stops at crossings is immensely strengthened if the length of trains is cut down thereby, as is the case, no doubt, much oftener than is suspected. If the average cost per train mile be taken at 90 cents, the very lowest sum for which an extra train can be run (say 21 instead of 20, to move the same number of cars) is 35 to 40 cents per train-mile, or say \$38 for a trip of 100 miles, amounting to \$13,870 per annum, or \$693.50 per train per year, or \$1.90 per stop, in addition to the DIRECT cost of the stop. In such cases it is mere madness to delay availing one's self of so cheap and easy a remedy as interlocking apparatus affords.

As, however, even without such limitation, the saving by dispensing with stops is, at most crossings, much greater than the cost of doing so, it would be hard to explain the comparative backwardness in using interlocking apparatus at crossings, except for two facts, both of which have probably some effect, although both of them rather explain than excuse the delay:

1. The protection of crossings requires the joint action of two roads, usually under different, and often under antagonistic, management, and it requires no little negotiation, and a conciliatory spirit on both sides, to arrange the details of the distribution of the expense.

2. The disadvantages and annoyances at crossings do not obtrude themselves so forcibly and continually upon the eyes of the higher officers, nor even of those who have their immediate ear, as the annoyances at terminal yards.

The last is a comparatively slight cause, and yet such little differences often have great effect, nor is it wholly unreasonable that it should be so, for most general officers find they have quite enough matters coming up which they are forced to decide and act upon, without taking up matters which are going along smoothly at least, if not altogether well.

The first difficulty, however, is, it can hardly be doubted, a serious one, and as it could be, or might have been, avoided or greatly reduced by a few additional words in the laws which authorize the use of interlocking apparatus as a substitute for stops, it is to be regretted that they do not contain them. The reason why this is so more fully appears in a separate article summarizing the existing provisions of law in the states which have acted in the matter.

The Baltimore & Ohio is the first of the trunk lines to report for the fiscal year ending with September last, and its report is the more interesting because it is now the only trunk line from which we get no monthly or quarterly reports of earnings.

It has suffered severely during the past year, the gross earnings of the whole system having been the smallest since 1879, when 10½ per cent. less road was worked, and the net earnings the smallest since 1877. For the last ten years the mileage, gross and net earnings and working expenses of the whole system have been:

Year to Sept. 30.	Miles.	Gross earn.	Expenses.	Net earn.
1876.....	1,456	\$15,031,236	\$9,609,857	\$5,421,380
1877.....	1,456	13,208,860	8,226,055	4,982,805
1878.....	1,456	13,765,280	7,709,301	5,995,979
1879.....	1,449	14,193,981	7,091,596	6,502,385
1880.....	1,449	14,317,740	10,350,970	7,986,370
1881.....	1,465	18,463,877	11,391,479	7,072,398
1882.....	1,509	18,383,873	10,929,214	7,454,660
1883.....	1,584	19,739,838	11,341,015	8,705,823
1884.....	1,622	19,433,607	11,676,307	7,760,300
1885.....	1,623	16,616,642	10,793,585	5,643,057

Thus the decrease from 1883-84 is \$2,820,000 (14½ per cent.) in gross and \$2,017,243 (27½ per cent.) in net earnings, the latter being equivalent to 19 per cent. on the common stock of the company. On the 598 miles of the "Main Stem and Branches" the decrease in gross earnings was 15½ per cent., and in net earnings \$1,267,841, or 24½ per cent. The three trans-Ohio divisions suffered a decrease from \$4,233,161 to \$3,602,563 in gross and from \$1,128,326 to \$677,380 in net earnings—the latter being 40 per cent. The Chicago Division suffered especially, losing 16 per cent. in gross and 47 per cent. in net, the latter being only \$1,000 per mile. The effect of the depression in the iron industry, which has had so much to do with reducing the Pennsylvania's profits, is seen in the reduction of the net earnings of the Pittsburgh Division from \$1,042,132 to \$773,419, while the 104 miles of the Parkersburg Branch yielded net but \$48,848 instead of \$141,723.

The traffic statistics, so far as given, show more gains than losses, there being no decrease in coal tonnage and a large increase in grain brought to Baltimore, while the through freight tonnage was larger than ever before.

We have this week reports of October earnings from 26 railroads, in addition to the 32 heretofore given. The 32 showed a gain this year of 6.7 per cent.; the 26 have a decrease of 3.4 per cent. The 58 together report:

Earnings	1885.	1884.	Increase.	P. c.
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Of the 26 roads reporting this week, 16 show an increase over last year, but the only two large roads reporting, the Wabash and the Grand Trunk, have large decreases. Excluding these, which have nearly half the earnings, the other 24 roads have in the aggregate an increase from \$2,696,309 to \$2,823,713, amounting to \$127,404, or 4½ per cent. They are, however, small roads, the aggregate earnings of the 24 being less than those of the Northwestern or the St. Paul.

The Grand Trunk's loss, though large, was less in

October than for several months previous, having been in successive months:

May.	June.	July.	Aug.	Sept.	Oct.
\$132,805	\$161,555	\$216,979	\$232,213	\$182,331	\$158,330

while for the five months ending with May it was at the rate of \$140,000 a month. For three years its October earnings have been:

1883.	1884.	1885.
\$1,063,592	\$1,477,137	\$1,318,817

so that the decrease from 1883 is at the formidable rate of 20½ per cent.

The Wabash is shorn this year of something like a thousand miles that it has worked heretofore (but whose earnings for 1884 are not given in the statement), so that the decrease of \$306,000 from the earnings of 1883 seems not unfavorable at all; but the decrease of \$160,000 from last year, with the same mileage, is decidedly unfavorable. The only other roads reporting large decreases this week are the Cincinnati, Washington & Baltimore (10 per cent.), the St. Louis & Terre Haute Main Line (11½ per cent.), the Vicksburg & Meridian (13½), and the Virginia Midland (10½).

The large gains are mostly by new or very small roads.

Chicago through shipments eastward in the month of October, including freights of all classes except live stock and dressed beef, have been as follows for the last seven years:

1879.	1880.	1881.	1882.	1883.	1884.	1885.
193,376	179,466	258,674	152,871	198,416	229,464	242,683

Thus the shipments this year were larger than in any other except 1881, when there was a railroad war, but only 6 per cent. more than last year. Doubtless much the larger part of the shipments this year in October were taken at the very low rates prevailing before the adoption of the 20-cent rate—10 cents per 100 lbs. or less—so that there is nothing encouraging in the large shipments. The effect of the rates is indicated by the following statement of the weekly shipments since August, which gives the actual shipments of freight of all classes:

Week to	Tons.	Week to	Tons.
Sept. 7.....	52,833	Oct. 7.....	79,617
" 14.....	71,533	" 14.....	57,996
" 21.....	71,952	" 21.....	38,026
Sept. 22 to 30.....	104,135	Oct. 22 to 31.....	62,486
		Nov. 7.....	42,081

The prevailing rate at the beginning of September was perhaps 15 cents, but it fell very soon to 12½ and 10 cents. The announcement of an advance Oct. 5 to 20 cents doubtless largely stimulated shipments; those of the last nine days of September were at the rate of 82,131 tons per week. Evidently the shipments billed at the low rates had mostly passed Chicago some time during the week to Oct. 14. In the first 14 days of the month 137,613 tons were forwarded; in the last 17 days, 100,512 tons—9,830 tons a day in the first period and 5,912 in the last. At this latter rate the shipments for the whole month would have been but 183,272 tons, which is less than in any year except 1880 and 1882. It is probable that if there had been a 20-cent rate throughout the month the shipments would not have been much more than this.

The October shipments this year were 57,995 tons (19 per cent.) less than the September shipments, which is unprecedented. In most years October shipments have been much the larger. The explanation, of course, is that the rates were ridiculously low during all September, but during less than half of October. Last year the October shipments were the larger by 62,785 tons.

For the ten months ending with October the total through eastward shipments from Chicago have been:

Year.	Tons.	Year.	Tons.
1879.....	2,124,310	1883.....	1,957,222
1880.....	1,845,010	1884.....	2,307,468
1881.....	2,413,485	1885.....	2,729,683
1882.....	1,635,543		

Thus the shipments this year were larger than ever before—18½ per cent. more than last year, when rates were very low throughout the first six months of the year, and 15 per cent. more than in 1881, when there was railroad war in the last 4½ of the ten months. This year rates were very low in all but a few weeks of the ten months.

The Boston Discussion of Steel-tired Wheels.—A Correction.

In the report of the meeting of the New England Railroad Club in our last issue, some remarks made by Mr. Little have been erroneously ascribed to Mr. Lauder. Mr. Little argued that steel tires on locomotives did not show the flange wear sometimes complained of on steel-tired wheels under cars, and that it was due to the fact that locomotives were built with proper care, the centre lines of the axles being square with the track. Car trucks, on the contrary, were built very carelessly, and were often out of square, and

hence the flanges cut. It was perfectly easy to build the trucks square, when the steel tires would give no trouble.

New York grain receipts in October were about one-fourth less this year than last, but its receipts by railroad were nearly the same in both years; the very low rates which ceased at Chicago by Oct. 15 affecting the New York receipts a week or more later. For eight years the receipts at New York in October have been (including flour) in bushels:

Year.	By rail.	Coastwise.	By canal.	P. c. by rail.	Total.
1885.....	6,511,395	364,600	4,215,761	58.7	11,091,756
1884.....	6,530,526	176,896	7,951,300	44.6	14,658,722
1883.....	7,269,774	257,045	8,525,300	45.3	16,052,119
1882.....	6,876,467	177,705	6,689,718	50.0	13,743,890
1881.....	7,322,076		4,033,980	64.5	11,356,056
1880.....	7,393,117		12,163,425	37.8	19,556,542
1879.....	10,020,861		12,767,814	44.0	22,788,675
1878.....	5,016,918		14,411,843	29.1	20,328,761

Thus the total New York receipts in October were less this year than in any other of the eight, though but little less than in 1881; and the rail receipts were the smallest since 1878, though very nearly the same as last year. Thus the very low rail rates did not make a large rail business, though they did make a small canal business—less than in any other year except 1881, when also there was a railroad war. Compared with last year there is a decrease of 47 per cent. in the canal receipts. Both rail and canal receipts were less in October than in September or August.

The diversion from the canal in October was not as great as the above figures indicate, because an unusually large proportion of the receipts this year (23 per cent., against 20 per cent. last year) was flour, which does not go by canal. The receipts of this were but 11½ per cent. less this year than last (equal to 2,567,000 bushels of wheat, against 2,900,000 last year), while the grain receipts were 38 per cent. less. Excluding flour, the railroads did not carry half the grain this year; but they carried 199,400 bushels more than last year, while the receipts by water were 3,534,000 less.

The total rail receipts (grain and flour) being nearly the same as last year, a comparison of the quantities carried by each route shows the relative gains and losses. We find:

A gain of 444,000 bushels = 30 p. c. by the Erie.
 A gain of 84,000 " = 11 " " West Shore.
 A loss of 338,800 " = 69 " " Lackawanna.
 A loss of 156,000 " = 13 " " Pennsylvania.
 A loss of 53,000 " = 2 " " N. Y. Central.

The gain by the Erie is due more to its having had an unusually small share last year than to anything unusual this year. It brought 29.7 per cent. of the rail receipts in October, against 26.1 per cent. for the ten months ending with October. The New York Central's share was considerably above its average this year (40.7 per cent. in October, against 38.3).

Chicago through rail shipments for the week ending Nov. 14, including only flour, grain and provisions this year and last, but freights of all kinds in previous years, have been, in tons:

1880.	1881.	1882.	1883.	1884.	1885.
53,269	51,949	44,721	48,769	47,548	29,390

Thus the shipments this year were much less than in any other and 38 per cent. less than last year.

The total shipments and the percentage going by each railroad in each of the last six weeks have been:

Tons:	Week ending.					
	Oct. 10.	Oct. 17.	Oct. 24.	Oct. 31.	Nov. 7.	Nov. 14.
Flour.....	10,350	6,952	4,412	3,644	3,915	4,571
Grain.....	36,288	27,157	14,628	15,259	14,680	15,114
Provisions.....	8,813	4,081	6,139	7,866	8,991	9,695
Total.....	55,460	38,790	25,179	26,769	27,586	29,890

Per cent.:	Week ending.					
	Oct. 10.	Oct. 17.	Oct. 24.	Oct. 31.	Nov. 7.	Nov. 14.
C. & Grand T.....	7.2	2.9	9.3	7.9	11.4	10.7
Mich. Cen.....	23.0	32.5	17.7	21.6	18.4	19.8
Lake Shore.....	20.5	18.1	13.4	14.2	15.1	13.5
Nickel Plate.....	10.8	5.5	7.4	8.1	7.9	11.1
St. L. & P.....	17.9	21.3	29.2	19.8	21.0	17.5
C. & St. L.....	10.3	10.0	12.0	13.1	11.4	15.6
Balt. & Ohio.....	7.1	4.9	6.0	8.1	7.4	7.9
Ch. & Atlantic.....	3.2	4.5	5.0	7.2	7.4	3.9
Total.....	100.0	100.0	100.0	100.0	100.0	100.0

The increase last week over the previous week was 8 per cent., but the shipments remain very small for the season.

The gain last week extended to all freights, but was 17 per cent. in flour and 9 per cent. in provisions, and only 3 per cent. in grain. The lake as well as the rail shipments of grain have been very light recently.

The most noticeable change in percentage is the decrease of the Chicago & Atlantic; a large gain by the Chicago, St. Louis is just about balanced by a loss by the Fort Wayne, so that the two Pennsylvania roads carried 33.1 per cent. of the whole, against 32.4 the week before. The three Vanderbilt roads together carried 44.4 per cent. of the whole, against 41.4 the week before. The Nickel Plate's share was unusually large, and its gain over the previous week just about equaled the Chicago & Atlantic's loss.

While the Chicago shipments are exceptionally light for the season, it must not be supposed that the railroads which carry from Chicago necessarily are having a very light traffic. On the contrary, the complaint is general that cars are scarce, and the indications are that the railroads are now much busier than when they were carrying 50,000 to 60,000 tons a week from Chicago. At this time of the year much farm produce that suffers from freezing—potatoes, apples, etc.—is hurried forward, and this and other traffic incident to the season frequently makes lines very busy, whatever the dearth of through traffic may be.

How much the reported shipments of flour, grain and provisions from Chicago differ from the actual shipments of all freight is illustrated by the report for the week to Nov. 7. The total shipments are reported to the joint agency of the roads for weeks ending on the 7th, 14th and 21st of each month and for the remainder of the month, while the report telegraphed of flour, grain and provisions is called a report for the week ending with each Saturday, but actually in-

cludes few or no shipments made on Saturday. It happens that the week to Nov. 7 ends on Saturday, so the two reports are for the same period that week. Now the report of flour, grain and provisions for that week gives the total as 29,390 tons, while the total actual shipments for the time were 42,081 tons, or nearly one-half more. Now the higher-class freights are not on the average one-third of the total; they are not even one-sixth; though we would not venture to say that they were not 13,000 tons in the first week of November. The fact is that they do not vary so much with the rates and the seasons as do the grain and flour shipments, and are therefore a larger proportion of the whole when the total shipments are small than when they are large. They were probably not much if any more than 13,000 tons a week in the early part of October, when the total shipments were 55,000 to 62,000 tons a week.

West-bound shipments from New York fell off very largely in the first week of November, being then more than a fifth less than the week before or the average in October. Nevertheless they were an eighth more than in the corresponding week of last year. Doubtless in both years the election had much to do with keeping down shipments. Last year the shipments in the first week of October were about one-eighth less than the week before and nearly a fifth less than the week after.

Cotton exports in October and for the three months ending with October are reported as follows by the Bureau of Statistics.

	October.		Three months.	
	1885.	1884.	1885.	1884.
Bales.....	607,921	561,421	793,919	761,128
Pounds.....	296,041,309	273,493,019	386,045,801	368,640,862
Value.....	\$30,369,184	\$28,223,292	\$39,684,145	\$38,577,758

For October there is an increase of 8 per cent. in quantity and of 7½ per cent. in value. For the three months the increase is 4½ per cent. in quantity and 3 per cent. in value.

In an old volume of drawings of early English railroad structures we have found one of a roof 240 ft. long and covering six lines of rails, entitled "Details of Shed at the Selby Depot, Leeds & Selby Railway." This line was paying 6 per cent. dividends in 1838 and was opened about 1835. The title page of the book is missing, but underneath the first owner's name on the fly leaf is the date "1840." It would therefore appear that the use of the word "depot" dates back very early in the history of railroads and was probably used both here and in England, though there it has long been superseded by the word "station."

While a great deal of pains is taken to secure accuracy and interchangeability in the bolts and other parts of the locomotives which require frequent repair, it is to be regretted that over size bolts are still used and that a nominal 1 in. bolt is really made somewhat larger to allow for the full size of the iron. It is a pity that this practice is not entirely discontinued, as it makes a good deal of confusion in repairs. Iron can be rolled with great exactness, if buyers insist upon it, and contract to pay for the exact weight of iron due to the proper size, refusing to pay for any excess weight and declining to receive any bars below the proper weight, a small allowance, say 1 per cent. being allowed for the unavoidable inaccuracies in rolling.

A V thread is also often used in place of the Sellers thread with a flat at the top and bottom of the thread. The objections to a V thread are so obvious that it is somewhat surprising to find it used in shops abounding in mechanical refinements and appliances for turning out accurate and interchangeable work.

Record of New Railroad Construction.

Information of the laying of track on new railroad lines is given in the current number of the *Railroad Gazette* as follows:

Chicago, Burlington & Northern.—The first track is laid from the Chippewa River, Wis., south 7 miles.

Eansville, Washington & Brazil.—Extended from Newberry, Ind., northwest to Worthington, 18 miles.

Gulf, Colorado & Santa Fe.—Track laid to a point three miles from Brownwood, Tex., an extension of 12 miles.

Jacksonville, Tampa & Key West.—Extended southward to Seville, Fla., 4 miles.

James River Valley.—Extended north by west to Jamestown, Dak., 30 miles.

Topeka, Salina & Western.—Extended westward to Herrington, Kan., 10 miles.

This is a total of 81 miles on 8 lines, making 2,364 miles thus far reported for the current year. The new track reported to the corresponding date for 14 years has been:

	Miles.		Miles.
1885.....	2,364	1878.....	1,947
1884.....	3,359	1877.....	1,945
1883.....	5,600	1876.....	2,102
1882.....	9,171	1875.....	1,150
1881.....	6,649	1874.....	1,686
1880.....	5,342	1873.....	3,350
1879.....	3,150	1872.....	6,311

These figures include main track only, second tracks and sidings not being counted.

TRADE CATALOGUES.

Chair Seats, Settees, etc. Frost & Peterson, manufacturers of Perforated Veneer, New York.

This publication gives a large number of illustrations of a great variety of forms of chairs, station seats, etc., in which perforated veneers are used.

Catalogue of the Swiss Locomotive and Machine Works. Winterthur, Switzerland.

This neatly got up little volume gives engravings and par-

ticulars of a great variety of locomotives manufactured by this well-known Swiss firm. Most of the locomotives are of special types suitable for lines of peculiar construction having curves and grades of abnormal difficulty. Several illustrations of tramway locomotives are given, some being fitted with condensing apparatus, and the moving parts being cased in to avoid frightening horses. In many of these engines provision is made for radiating the axles.

Engravings and particulars are also given of locomotives to work up inclines of 1 in 4 by means of rack rails, and of engines for portable railroads. Many varieties of valve gear are used on these engines, in order, apparently, to do away with all inside work, and bring the whole of the motion out side the wheels, so as to be perfectly accessible.

The Swiss Locomotive Works are represented in this country by Mr. Otto Grüniger, New York. The letterpress is in French and German in parallel columns, but those unacquainted with those languages will be readily able to understand the construction of the engines from the very clear and well-executed drawings.

TECHNICAL.

Locomotive Building.

The Brooks Locomotive Works in Dunkirk, N. Y., have recently received orders for 5 ten-wheel freight engines, 18 by 24 in. cylinders, for the Burlington, Cedar Rapids & Northern road. The works report quite a brisk inquiry for locomotives.

The Cook Locomotive Works, in Paterson, N. J., have recently received two or three small orders for locomotives and are preparing for an increased business.

The Baldwin Locomotive Works, in Philadelphia, last week delivered two new passenger engines, with 16 by 24 in. cylinders to the Raleigh & Gaston road.

The Rogers Locomotive Works in Paterson, N. J., have recently received an order for several locomotives for the Wilmington & Weldon road.

The Car Shops.

The New York, New Haven & Hartford Co. is now drawing specifications for 500 new freight cars for immediate delivery, and will, it is expected, follow this order by another one for 500 more for later delivery.

The Standard Oil Co. is about to build 100 oil tank cars for its own use.

The Jackson & Sharp Co. in Wilmington, Del., has recently shipped 2 first-class passenger cars, 2 mail cars and a baggage and express car to the Missouri, Iowa & Nebraska road; also 2 narrow-gauge passenger cars to the Danville & New River road, and some standard gauge passenger cars to the Erie & Wyoming Valley road. The shops are about finishing some very fine Woodruff sleeping and drawing room cars, with buffet attachment.

The Knoxville Car Wheel Co., in Knoxville, Tenn., is busy on a number of orders for car wheels. The company has recently added a machine shop to its foundry.

The Anniston Car Works, in Anniston, Ala., are still in charge of a receiver, but arrangements have been made to build a number of freight cars there for the East & West Railroad of Alabama.

Mr. Charles Scott, of the Keystone Railway Car Spring Works in Philadelphia, reports that the graduated bolster springs made in those works are now in use under more than 3,000 cars on railroad all over the country; and that no instance has been reported in which they have failed or in which they have not done good service.

The Huntingdon Car Works in Huntingdon, Pa., were sold Nov. 16 by the trustees for the bondholders and were bought for \$20,000, subject to certain incumbrances, by Mr. Percival Roberts, of Philadelphia. It is said that they will be used as repair shops for the East Broad Top road.

The directors of the Maine Central Co. have voted to order 6 new passenger cars and 100 freight cars for the road.

Bridge Notes.

The Union Bridge Co. has contracts on hand it will take it several months to fill. The shops at Athens, Pa., are running double time, being chiefly employed on the work for the new bridge over the Ohio at Louisville, while the Buffalo shops are also working over-time on the new bridge over the Arkansas River at Van Buren, and also on several bridges for the Chicago, Burlington & Northern road.

The Smith Bridge Co. in Toledo, O., has taken a contract to build a new iron bridge with a draw-span 174 ft. long at Alpena, Mich.

The Phoenix Bridge Co. at Phoenixville, Pa., has just completed a new bridge over the Schuylkill River at Reading, Pa., for the Wilmington & Northern road.

Iron and Steel.

The Keystone Rolling Mill in Reading, Pa., which started up single turn in October, has commenced running double turn.

Northampton Furnace, near Freemansburg, Pa., will be put into blast shortly, the Bethlehem Iron Co. having leased it.

The Crane Iron Co. has put into blast another one of its furnaces at Catasauqua, Pa., making 4 stacks now in blast there.

Rising Fan Furnace, in Dade County, Ga., made in October 3,200 tons of pig-iron, most of it being first quality foundry iron.

The Western Steel Co. is getting its works at Carondelet in good running order. One of the furnaces was fired up Sept. 1, and by the time the steel department was put in operation two weeks ago had a good supply of iron on hand. The steel department is running single turn for the present, but two sets of hands will be put to work at an early day. Their output of steel amounts to 100 tons per day and finds a ready market. When the works are in full blast it is expected the output will be between 200 and 250 tons per day. —St. Louis Age of Steel.

Manufacturing and Business.

The Industrial Works, of Bay City, Mich., have found it necessary during the year about closing to keep their entire force employed at full time to fill the many orders which have been received for their specialties. Recent shipments of their improved pile-drivers have been made to the Pittsburgh, Cincinnati & St. Louis, the Chicago & Great Southern and other roads. The former road has also but recently received 2 special derrick cars from this company. Orders for different varieties of this class of machinery have just been filed for the Pittsburgh, Fort Wayne & Chicago, the Cumberland Valley, and the Beech Creek, Clearfield & Southwestern, and for turn-tables for the Chicago, Rock Island & Pacific, the Des Moines & Fort Dodge, and the Detroit, Bay City & Alpena roads. These works are at present employed upon a large contract with the Michigan Central railroad for special machinery, and upon miscellaneous orders. There

is also a demand at this season of the year with them for their various devices in snow plows.

The Rail Market.

Steel Rails.—Several large contracts have been closed, and sales are reported at \$33@34 per ton at mill, \$35 being spoken of for small lots. Prices are very firm, and the mills are in a position to maintain them.

Rail Fastenings.—Spikes are quoted at 2 cents per pound in Pittsburgh; track-bolts at 2.60@2.85 and splice-bars at 1.60@1.70 cents.

Iron Sleepers on a Street Railroad.

The Greenbush street railroad, from Greenbush to Albany, N. Y., is now being laid with exclusively iron substructure, on Gibbon's system. The contract for the road is let to the Metallic Steel Railway Supply Co., of Albany.

Steel Sleepers in England.

The Midland Railway of England has followed the example of the London & Northwestern by beginning the use of steel sleepers, having given an order to a Belgian firm for 5000 sleepers weighing some 250 tons, or about 112 lbs. each. It is rumored that this is only a beginning in much larger orders for which the company is about to invite tenders.

General Railroad News.

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings of the stockholders of railroad companies will be held as follows:

Boston & Albany, annual meeting, at the Meionaon in Boston, at 11 a. m. on Dec. 9.

Eastern, annual meeting, at the passenger station in Boston, Dec. 9.

Georgia Pacific, annual meeting, in Birmingham, Ala., Nov. 25.

Mobile & Ohio, annual meeting of the debenture holders (who name the directors), at the office, No. 11 Pine street, New York, Nov. 21.

New York, Lake Erie & Western, annual meeting, at the office in New York, Nov. 24.

Old Colony, annual meeting, at the United States Hotel in Boston, at 10:30 a. m. on Nov. 24.

Dividends.

Dividends on the capital stocks of railroad companies have been declared as follows:

Boston & Albany, 2 per cent., quarterly, payable Dec. 31, to stockholders of record on Nov. 30.

Delaware & Bound Brook (leased to Philadelphia & Reading), 2 per cent., quarterly, payable Nov. 17.

Iowa Falls & Sioux City (leased to Illinois Central), 1½ per cent., quarterly, payable Dec. 1, to stockholders of record on Nov. 14.

Worcester, Nashua & Rochester, extra dividend of 17 per cent. in stock, payable to stockholders of record on Nov. 13.

Railroad and Technical Conventions.

Meetings and conventions of railroad associations and technical societies will be as follows:

The **Master Car-Builders' Club** will hold its regular monthly meetings through the winter at the rooms, No. 113 Liberty street, New York, on the evening of the third Thursday in each month.

The **New England Railroad Club** will hold its monthly meetings at its rooms in the Boston & Albany passenger station, in Boston, on the evening of the fourth Wednesday in each month.

The **Western Railway Club** will hold its regular monthly meetings at its rooms, No. 103 Adams street, in Chicago, on the third Wednesday in each month.

Train Dispatchers' Association.

A local branch of the American Train Dispatchers' Association was organized at Jersey City, N. J., on Sunday, Nov. 15.

Delegates were present from the New York, Ontario & Western, the Delaware, Lackawanna & Western, the New York City & Northern, the Long Island, the New York, West Shore & Buffalo, the Pennsylvania and the New York, Lake Erie & Western. The following officers were elected: M. W. Maguire, New York City & Northern, President; H. J. Quigg, Long Island, Vice-President; W. C. Hartigan, New York, Ontario & Western, Secretary and Treasurer.

ELECTIONS AND APPOINTMENTS.

American Society of Mechanical Engineers.—At the annual meeting in Boston last week the following officers were chosen: President, Coleman Sellers, of Philadelphia; Vice-Presidents, Olin H. Landreth, of Nashville; Horace Lee, of Philadelphia; C. H. Loring, of Washington, and A. Stirling, of Cambridge; Managers, H. A. Hill, of Boston; W. Kent, of New York; L. T. Wellman, of Cleveland; Treasurer, William H. Wiley, of New York; Secretary, C. J. H. Woodbury.

Atchison, Topeka & Santa Fe.—Mr. Charles W. Smith has been chosen Vice-President of this company and will enter upon his duties Dec. 1 next. Mr. Smith has had a long and varied experience as a railroad officer, having served as General Freight Agent of the Columbus, Chicago & Indiana Central and of the Pittsburgh, Cincinnati & St. Louis, afterwards as General Freight Agent of the Central Pacific, then as General Manager of the Indiana, Bloomington & Western and as General Freight Agent and Traffic Manager of the Chicago, Burlington & Quincy, and as Traffic Manager of the New York, Lake Erie & Western. For a little over four years past he has been General Manager of the Chesapeake & Ohio Railroad and its western connections.

Atlantic & Great Western.—This company was recently organized by the election of the following directors: H. P. Hammett, W. J. Kirk, James McCullough, Greenville, S. C.; E. A. Smyth, Pelzer Mills, S. C.; F. A. Conner, Cokesbury, S. C.; J. B. Humbert, Laurens, S. C.; W. Scott Allen, Fruit Hill, S. C.; G. T. Jackson, L. M. Moore, Ninety-Six, S. C.; T. W. Chiles, Edgefield, S. C.; W. J. Hewitt, Johnston, S. C. The board elected H. P. Hammett President; W. J. Kirk, Vice-President, Chief Engineer and Superintendent; F. M. Pope, of Ninety-Six, Secretary and Treasurer.

Baltimore & Ohio.—At the annual meeting in Baltimore, Nov. 16, the following directors on the part of the general stockholders were elected. William F. Burns, J. Spear Nicholas, John Gregg, William W. Taylor, J. Carey Coale, G. A. Von Lingen, Decatur H. Miller, Joshua G. Harvey, George W. Dobbin, Henry C. Smith, Aubrey Pearre and T. Harrison Garrett. The President will be elected at the next monthly meeting of the board of directors, and no opposition to the re-election of Mr. Robert Garrett is known.

Boston & Providence.—At the annual meeting in Boston, Nov. 18, the following directors were chosen: J. W. Balch, T. P. I. Goddard, Wm. R. Robeson, Royal C. Taft, Francis M. Weld, Henry A. Whitney, J. H. Wolcott.

Brunswick & Western.—The following circular from Vice President and General Manager A. A. Gaddis is dated Brunswick, Ga., Nov. 11: "Mr. James N. Brown has been appointed Master Builder and Roadmaster, vice J. E. Dart, resigned, to take effect Nov. 16, 1885. Mr. Brown will have charge of bridges, buildings, trestles, and tracks, with headquarters at Brunswick, Georgia."

Canada, La Crosse & Southwestern.—This company has elected officers as follows: President, F. A. Roziere, Charles City, Ia.; Treasurer, G. C. Hixon, La Crosse, Wis.; Secretary, A. R. Spriggs, Charles City, Iowa.

Catasauqua & Fogelsville.—At the annual meeting in Catasauqua, Pa., recently, the following officers were chosen: President, George T. Barnes; directors, B. G. Clark, Samuel Dickson, Charles E. Haven, Fisher Hazard, Joseph Hunt, John T. Knight, Daniel Runkle, John Thomas, Samuel Thomas, Charles Stewart Wurtz; Secretary and Treasurer, John Williams.

Charleston & Savannah.—Mr. E. P. McSwiney has been appointed General Freight and Passenger Agent in place of Mr. S. C. Boylston, resigned.

Chicago & Atlantic.—Mr. Jacob Johann has been appointed Master Mechanic of this company, vice C. J. Donville resigned, and assumed the duties of the office Oct. 29. Mr. Johann has been for a number of years on the Wabash, St. Louis & Pacific, and recently resigned his position as General Master Mechanic of that road.

Chicago, Burlington & Northern.—The following is a list of the officers of this new company as far as appointed: President, A. E. Touzalin, St. Paul, Minn.; Manager, Geo. B. Harris, St. Paul, Minn.; Superintendent, W. H. Holcomb, La Crosse, Wis.; Assistant Superintendent, J. H. Barr, Savannah, Ill.; Auditor, N. B. Hinckley, St. Paul, Minn.; Cashier, G. W. Traer, St. Paul, Minn.; Chief Engineer North Division, C. C. Upham, St. Paul, Minn.; Chief Engineer South Division, W. B. Lawson, La Crosse, Wis.; Consulting Engineer on bridges, O. Chanute, Kansas City, Mo.; Purchasing Agent, Geo. Hargreaves, Chicago, Ill.; Superintendent Telegraph, Geo. W. Cutts, La Crosse, Wis.; Chief Clerk to General Superintendent, R. J. Brundage, La Crosse, Wis.; Storekeeper, Geo. B. Williams, La Crosse, Wisconsin.

Chicago, Emporia & Southwestern.—The directors of this new company are: H. H. Gardner, Eldorado, Kan.; J. S. Coolittle, Cottonwood Falls, Kan.; H. S. Clark, H. C. Cross, D. M. Davis, C. Hood, J. M. Stelle, O. W. Wayne, Emporia, Kan.; W. N. Jones, Des Moines, Iowa.

Chicago, St. Paul, Minneapolis & Omaha.—The following notice from President M. Huggitt is dated St. Paul, Minn., Nov. 16: "Mr. Edwin W. Winter is appointed General Manager of this company, to take effect from this date. The heads of the Operating and Traffic departments of the company will report to the General Manager. The office of Assistant President is abolished."

Mr. Winter has been connected with the road for a long time, and has recently held the office of Assistant President, so that the new appointment is chiefly a change in title.

Dayton & Ironton.—At the annual meeting in Dayton, O., Nov. 10, the following directors were chosen: J. E. Gimpeling, W. B. Williams, Dayton, O.; M. P. Allison, Xenia, O.; Edward C. Cole, Marysville, O.; Robert H. Foss, Springfield, O.; John C. Entekin, Chillicothe, O.; Willis S. Walker, Columbus, O.; C. W. Fairbanks, Indianapolis, Ind.; John F. Kimball, Lowell, Mass.; George S. Daniels, H. H. McWhinny, Nathaniel B. Mansfield, Boston; Austin Corbin, New York. The board elected Austin Corbin President; George S. Daniels, Secretary and Treasurer.

Denver, Memphis & Atlantic.—Mr. J. J. Burns, of Belle Plaine, Kan., has been chosen President of this company.

Franklin & Megantic.—At the annual meeting in Kingfield, Me., Nov. 11, the following directors were chosen: John Winter, E. S. Winter, Kingfield, Me.; G. W. Harris, Salem, Me.; J. W. Porter, P. H. Stubbs, Strong, Me.; Varum B. Mead, Samuel W. Sargent, Boston. The board elected officers as follows: President, Samuel W. Sargent; General Manager and Treasurer, P. H. Stubbs; General Passenger and Freight Agent, W. Fred F. Fogg, of Strong; Purchasing Agent, V. B. Mead.

Georgia Pacific.—Mr. J. P. Meredith has been appointed Superintendent of the Western Division. He was recently on the East Tennessee, Virginia & Georgia road.

Huntingburg, Tell City & Cannelton.—The office of this new company is in Cannelton, Ind.; the directors are Morris McDonald, R. S. Miner, D. W. Soliday, George T. Evans, J. M. Fetter, Joseph S. Odiane and John J. Collier.

International of Maine.—At the annual meeting in Bangor, Nov. 12, the following directors were chosen: E. R. Burpee, F. A. Wilson, Bangor, Me.; Noah Woods, Princeton, Me.; W. B. Ives, T. Morey, Sherbrooke, Que.; Charles C. Colby, Stanstead, Que. The board elected Charles C. Colby President; Noah Woods, Vice-President; James F. Rawson, Secretary.

Jamestown & Northeastern.—The officers of this new company are: President, C. A. Clute, Fredonia, N. Y.; Vice-President, J. A. Burch, Buffalo, N. Y.; Secretary, O. W. Gawne, Fredonia, N. Y.; Treasurer, W. T. Coleman, Dunkirk, N. Y.

Los Angeles & San Gabriel Valley.—The office of this company is in Los Angeles, Cal.; the officers are J. F. Crank, President; S. P. Jewett, General Manager; S. Washburn, Treasurer; Louis Blankenhorn, General Freight and Passenger Agent.

Memphis, Birmingham & Atlantic.—The officers of this company (successor to the Memphis, Selma & Brunswick) are: President, James B. Pace, Richmond, Va.; Vice-President and General Manager, T. C. Leake; Chief Engineer, Major R. H. Temple.

Mexican Central.—Chief Engineer R. E. Briggs having resigned, the engineering department has been abolished and its business has been transferred to the Superintendent's department. Mr. Vaughn has been appointed Trackmaster of the First and Second divisions of the road, and Mr. Vincent Jackson Trackmaster of the Third and Fourth divisions.

Michigan City & Indianapolis.—This company recently elected directors as follows: Walter Vail, Michigan City, Ind.; Charles Stuart, La Fayette, Ind.; C. H. Brownlee, Peru, Ind.; David Marcy, V. T. Mallott, Indianapolis, Ind.; A. L. Hopkins, Solon Humphries, New York. The board elected David Marcy, President; W. T. Cannon, Secretary.

Naugatuck.—At the annual meeting in Bridgeport, Nov. 18, the following directors were chosen: J. G. Wetmore, Winsted, Conn.; Frederick J. Kingsbury, Waterbury, Conn.; R. M. Bassett, Derby, Conn.; D. W. Plumb, Birmingham, Conn.; W. D. Bishop, W. D. Bishop, Jr., Bridgeport, Conn.; J. B. Robertson, J. S. Sperry, New Haven, Conn.; A. L. Dennis, Newark, N. J. The board re-elected W. D. Bishop President; Horace Nichols, Secretary and Treasurer.

North Carolina Midland.—Col. J. T. Morehead has been chosen President, with the following directors: J. M.

Vaughn, A. Leazer, J. W. Fries, W. C. Wilson and C. H. Wiley.

Palisades.—The incorporators of this new company are: George Livingston Baker, George A. Lawrence, Edward Leavitt, Jr., Appleton Morgan, James E. Reynolds. Mr. Appleton Morgan is President.

Philadelphia, Germantown & Norristown.—This company, whose road is leased to the Philadelphia & Reading, has elected the following directors: Lewis Elkin, John A. Brown, Jr., Richard Dale, James W. Johnson, Jr., Thomas U. Walter, John F. Gilpin, John Slingluff, I. V. Williams, George H. Colket, Edwin N. Benson, Winfield S. Wilson, George W. Longacre.

Raleigh & Augusta Air Line.—At the annual meeting in Raleigh, N. C., Nov. 12, Mr. John M. Robinson was re-elected President, with the old board of directors.

Rochester & Pittsburgh.—At the annual meeting last week the following directors were chosen: Walston H. Brown, F. A. Brown, G. P. Stone, Henry Day, Andrew Pierce, A. L. Hopkins, George W. Parsons, Wheeler H. Peckham, John H. Hall, P. O. French, James Francis, Alfred Roosevelt, T. F. Wentworth.

Rome, Watertown & Ogdensburg.—Mr. W. S. Jones is appointed Assistant Superintendent, and will have charge of the Western Division.

St. Joseph & Grand Island.—The board of this company has been recently reorganized, Messrs. Charles F. Adams, Jr., Elisha Atkins, F. L. Ames and Sidney Dillon, of the Union Pacific, being elected to represent the large interests which that corporation has in the new company. Charles F. Adams, Jr., has been chosen Chairman of the Board; James H. Benedict, President; Elisha Atkins, Vice-President; Henry McFarland, Treasurer; O. H. Mink, Comptroller; Alexander Miller, Secretary.

St. Louis, Carbondale, Metropolis & Paducah.—The directors of this new company are: L. A. Bosworth, H. W. Hart, W. E. Smith, Alton, Ill.; Charles H. Appell, James Millan, St. Louis.

Shreveport & Houston.—Mr. E. L. Bremond, of Houston, Tex., has been chosen President in place of E. D. Jacobs, resigned.

Utica & Black River.—At the annual meeting in Utica, N. Y., Nov. 11, the following directors were chosen: John Thorn, John F. Maynard, John J. Crouse, Abijah J. Williams, John M. Crouse, Russell Wheeler, Abram G. Brower, Theodore S. Sayre, Lewis Lawrence, Edwin Thorn, Daniel B. Goodwin, Fred S. Eaton, Ludlow Patton. The board elected John Thorn President; J. F. Maynard, Vice-President; S. A. Lathrop, Secretary; W. E. Hopkins, Treasurer. Mr. Hopkins, who is chosen Treasurer in place of Mr. Edwin Thorn, who declined a re-election, has been Secretary for a long time, having been in the service of the company for over 20 years.

Walden's Ridge.—At the annual meeting in Knoxville recently, the following directors were chosen: D. A. Carpenter, C. M. McGhee, E. J. Sanford, Knoxville, Tenn.; E. C. Lackland, St. Louis; C. S. Brice, Sylvester Kneeland, John S. Moore, New York. The board elected C. M. McGhee, President; C. M. McClung, Secretary and Treasurer.

Watertown & Waterbury.—This company, whose road is operated by the Nantucket Co., has elected W. D. Bishop President; L. W. Cutter, Secretary and Treasurer.

PERSONAL.

—Mr. C. J. Domville has resigned his position as Master Mechanic of the Chicago & Atlantic road.

—Mr. S. C. Boylston has resigned his position as General Freight and Passenger Agent of the Charleston & Savannah road.

—Mr. R. E. Briggs has resigned his position as Chief Engineer of the Mexican Central road and will return to the United States. Mr. Briggs has been connected with the Mexican Central almost from the first commencement of work on the line.

—Mr. J. P. Meredith having resigned his position as Superintendent of the Georgia Division of the East Tennessee, Virginia & Georgia road, the employees of that division have presented him with a testimonial of their esteem and a handsome set of silver. Mr. Meredith resigned to accept a position on the Georgia Pacific road.

—Mr. William H. Paige died in Cleveland, O., Nov. 14, after a short illness, aged 44 years. Mr. Paige was born in Vermont, but early settled in Springfield, Mass., and after learning his trade entered the employ of the Wason Car Co., in whose service he remained for 22 years. Some years ago Mr. Paige invented the steel-tired car wheel, which is known by his name, and shortly afterward formed the Paige Car Wheel Co. Some two years ago the works of the company were established in Cleveland, and in order to superintend them Mr. Paige left the Wason works and removed to Cleveland.

—Mr. Azariah Boody, who died in New York, Nov. 17, was born at Stanstead, Ont., in 1815. Early in life he settled at Rochester, N. Y., where he began business as a contractor on the New York Central Railroad. He served one term in Congress as a representative from the Rochester District. He afterwards removed to New York, where he was well known as a large holder of and speculator in railroad securities. He was elected President of the Toledo, Wabash & Western Railroad Co., and held that position for years, resigning seven or eight years ago. Since then he has spent his winters in Florida, where he busied himself in the lumbering trade and shipped a large amount of railroad ties north.

TRAFFIC AND EARNINGS.

Coal.
Coal tonnages for the week ending Nov. 7 are reported as follows:

	1885.	1884.	Inc. or Dec.	P. c.
Anthracite.....	783,886	429,813	I. 354,073	82.3
Eastern bituminous.....	290,158	188,397	I. 111,761	63.3
Coke.....	55,129	41,686	I. 13,443	32.1

The anthracite market is fairly active, although the continued mild weather prevents any great pressure for immediate deliveries of coal for domestic uses. The attempt made to raise prices does not seem to be very successful, and has done something to check sales.

The coal tonnage of the Chesapeake & Ohio Railroad for the ten months to Oct. 31 was:

	1885.	1884.	Increase.	P. c.
Coal.....	935,403	690,974	244,429	35.3
Coke.....	100,869	61,745	39,124	63.4
Total.....	1,036,272	752,719	283,553	37.7

The chief increase this year was in the New River and

other steam coals and in splint and block coal, although all classes show a considerable gain.

The coal tonnage of the Baltimore & Ohio Railroad for the fiscal year ending Sept. 30 was:

	1884-85.	1883-84.	Inc. or Dec.	P. c.
Main Stem, revenue.....	3,043,926	2,838,609	I. 215,317	7.6
" " Co.'s use.....	443,544	439,912	I. 3,632	0.8
Total Main Stem.....	3,487,470	3,278,521	I. 218,949	6.7
Pittsburgh Division.....	2,003,982	2,157,606	D. 153,624	7.1
Trans. Ohio lines.....	909,594	906,548	D. 3,046	0.3
Total.....	6,400,746	6,392,675	I. 8,071	0.1

Coke tonnage (which is chiefly on the Pittsburgh Division) is included in coal. Of the Main Stem revenue tonnage last year 2,288,949 tons were carried to Baltimore, and 754,677 tons delivered to local points or carried westward.

Cumberland coal shipments for the week ending Nov. 14 were 56,468 tons. Total to Nov. 14 this year 2,422,223; last year, 2,537,478; decrease, 115,255 tons, or 4.5 per cent.

Railroad Earnings.

Earnings of railroad lines for various periods are reported as follows:

Ten months to Oct. 31:				
	1885.	1884.	Inc. or Dec.	P. c.
Ala. Gt. South.....	\$861,849	\$892,335	D. \$30,486	3.4
Boston, Hoosac	387,511	379,503	I. 8,008	2.1
Tun. & W.....	2,167,160	2,188,019	D. 20,859	0.9
Chn. N. O. & T. P.....	1,401,256	1,528,805	D. 127,549	8.3
Cin. W. & Balt.....	409,015	407,608	I. 1,407	0.3
Cleve. Ak. & Col.....	840,025	801,925	I. 38,100	26.7
Den. & R. G. W.....	30,115	290,863	I. 18,252	6.2
Ev. & T. Haute.....	624,507	628,134	D. 3,627	0.6
Fla. Ry. & N. Co.....	772,594	789,036	D. 16,442	2.1
Fr. Worth & D.....	387,285	401,611	D. 14,326	3.5
Grand Trunk.....	12,642,716	14,336,211	D. 1,693,475	11.8
Ill. Cent. Ill. lines.....	5,330,586	5,134,197	I. 217,389	4.2
South. Div.....	3,364,931	3,006,688	I. 358,243	4.9
Iowa lines.....	1,359,571	1,409,680	D. 50,109	5.7
Kansas City, Ft. Scott & Gulf.....	2,110,450	1,982,284	I. 128,175	6.5
Kan. City, Spr. & Mem.....	1,255,453	943,458	I. 311,995	33.1
Marq. H. & O.....	751,794	708,079	D. 43,715	5.8
N. O. & Nor'east.....	538,921	3,379,931	I. 185,528	52.5
N. Y., Ont. & W.....	1,570,405	1,051,959	D. 518,446	49.2
Rich. & Dan.....	3,243,644	3,134,660	I. 108,984	3.5
St. Jo. & Grand Island.....	873,260	.....	.....	.....
St. L. A. & T. H.....	1,001,005	1,124,201	D. 123,196	10.9
Main Line.....	615,818	618,843	D. 3,025	0.5
St. L. Ft. S. & W.....	324,059	415,845	I. 108,214	28.0
St. L. & Mer.....	347,226	390,556	D. 43,330	12.0
Vick. Shre. & P.....	317,507	182,150	I. 135,357	74.3
Va. Midland.....	1,284,807	1,351,769	D. 66,962	4.9
Wab. St. L. & P.....	11,505,174	12,634,179	D. 1,129,005	8.9
Western N. C.....	383,385	359,678	I. 23,707	6.6

Nine months to Sept. 30:				
	1885.	1884.	Inc. or Dec.	P. c.
Balt. & Potomac.....	\$974,269	\$903,207	I. \$71,062	7.9
Net earnings.....	384,675	297,436	I. 87,239	29.2
Bur. C. R. & No.....	2,104,066	1,952,463	I. 211,603	10.8
Net earnings.....	606,226	562,522	I. 43,704	7.7
Des. M. & Ft. D.....	297,080	256,004	I. 41,076	4.3
Net earnings.....	69,485	75,870	D. 6,385	9.3
N. Y. Sus. & W.....	80,518	79,100	I. 53,328	7.1
Net earnings.....	369,375	297,026	I. 72,349	24.2

Month of September:				
	1885.	1884.	Inc. or Dec.	P. c.
Balt. & Potomac.....	\$112,071	\$114,513	D. \$2,442	2.1
Net earnings.....	55,045	44,995	I. 10,050	22.3
Bur. C. R. & No.....	209,973	261,160	D. 38,813	14.5
Net earnings.....	126,497	107,074	I. 19,423	18.2
Den. & R. G. W.....	104,853	87,592	I. 22,361	27.0
Net earnings.....	46,570	18,770	I. 27,800	147.7
Des. M. & Ft. D.....	40,695	41,892	D. 1,197	2.9
Net earnings.....	16,449	20,081	D. 3,632	20.4
N. Y. Sus. & W.....	105,354	95,417	I. 9,937	10.4
Net earnings.....	52,988	43,697	I. 9,291	21.0
Scioto Valley.....	51,908	.....	.....	.....
Net earnings.....	16,488	.....	.....	.....

Month of October:				
	1885.	1884.	Inc. or Dec.	P. c.
Ala. Gt. South.....	\$104,273	\$109,734	D. \$5,461	4.9
Boston, Hoosac	48,424	45,186	I. 3,238	7.2
Tun. & W.....	257,163	242,380	I. 14,783	6.1
Chn. N. O. & T. P.....	129,941	108,904	D. 10,937	9.3
Cin. W. & Balt.....	45,500	44,892	I. 608	1.3
Cleve. Ak. & Col.....	125,615	101,300	I. 24,315	23.7
Den. & R. G. W.....	42,025	34,859	I. 7,166	20.5
Ev. & T. Haute.....	70,920	63,759	I. 7,161	11.2
Fla. Ry. & N. Co.....	81,217	80,597	I. 620	0.8
Fr. Worth & D.....	43,497	39,867	I. 3,630	9.1
Grand Trunk.....	1,318,137	1,477,137	D. 158,999	10.7
Ill. Cent. Ill. lines.....	636,016	619,395	I. 16,621	2.7
South. Div.....	446,644	450,219	D. 3,575	0.8
Iowa lines.....	168,000	184,867	D. 16,867	9.1
Kansas City, Ft. Scott & Gulf.....	254,924	230,776	I. 24,148	10.4
Kan. City, Spr. & Mem.....	126,514	113,471	I. 13,043	11.5
Marq. H. & O.....	108,176	91,144	I. 17,032	18.7
N. O. & Nor'east.....	77,415	80,041	D. 2,626	3.2
N. Y., Ont. & W.....	168,796	183,445	D. 14,649	8.5
Rich. & Dan.....	419,800	428,100	D. 8,300	1.9
St. Jo. & Grand Island.....	124,368	100,592	I. 23,776	23.5
St. L. A. & T. H.....	122,065	137,254	D. 15,193	11.2
Main Line.....	61,350	75,509	I. 5,841	9.5
St. L. Ft. S. & W.....	68,571	50,031	I. 18,540	37.1
St. L. & Mer.....	47,997	55,333	D. 7,336	15.3
Vick. Shre. & P.....	48,499	46,888	I. 1,611	3.4
Va. Midland.....	150,022	167,595	D. 17,573	10.4
Wab. St. L. & P.....	1,306,050	1,466,294	D. 160,244	10.9
Western N. C.....	45,841	41,350	I. 4,491	10.8

First week in November:				
	1885.	1884.	Inc. or Dec.	P. c.
Buff. R. & Pitts.....	\$25,527	\$24,383	I. \$1,144	4.7
Chi. & East. Ill.....	36,369	30,061	I. 5,408	17.4
Chi. & Nor'west.....	560,400	456,100	I. 104,300	22.9
Ch. St. P. M. & O.....	140,000	132,110	I. 17,890	10.9
C. I. St. L. & C.....	48,005	47,878	I. 127	0.3
Ill. Central.....	247,200	216,903	I. 30,297	14.1
I. va. lines.....	36,100	37,061	D. 961	2.6
Louisv. & Nashv.....	267,745	269,255	D. 1,510	0.6
Mil. & Northern.....	10,625	10,012	I. 613	6.1
Northern Pacific.....	3,2567	316,369	I. 16,198	5.1

Second week in November:				
	1885.	1884.	Inc. or Dec.	P. c.
Chi. Mil. & St. P.....	\$634,030	\$560,039	I. \$73,991	13.2
Long Island.....	49,580	47,801	I. 1,779	3.7
St. L. & San F.....	111,700	102,900	I. 8,800	8.5

Weekly earnings are usually estimated in part, and are subject to correction by later statements. The same remark applies to early statements of monthly earnings.

Cotton.

Cotton movement for the week ending Nov. 13 is reported as follows, in bales:

	1885.	1884.	Inc. or Dec.	P. c.
Receipts.....	173,210	135,309	I. 37,901	28.0
Shipments.....	149,923	111,425	I. 38,498	34.7
Stock, Nov. 13.....	279,931	198,970	I. 80,961	40.7

Receipts:				
	1885.	1884.	Inc. or Dec.	P. c.
Receipts.....	232,061	209,114	D. 37,053	13.8
Exports.....	144,415	207,421	D. 61,006	29.5
Stock, Nov. 13.....	760,910	779,412	D. 18,502	2.4

The total shipments from plantations for the crop year (from Sept. 1) to Nov. 13 are estimated at 2,372,173 bales, against 2,292,014 last year, 2,456,291 in 1883-84 and 2,325,566 in 1882-83.

Anthracite Coal Tonnage.

Anthracite coal tonnage for October and the ten months to Oct. 31 is reported as follows by Mr. John H. Jones, the Official Accountant, the statement including the entire production of anthracite coal, excepting that consumed by employees and for steam and heating purposes about the mines:

	October.		Ten months.	
	1885.	1884.	1885.	1884.
Phila. & Reading.....	1,237,321	1,147,197	9,370,612	9,122,566
Lehigh Valley.....	700,733	506,319	4,817,843	4,837,668
Del. Lack. & W.....	642,161	502,303	4,170,653	4,218,236
Del. & H. Canal Co.....	387,376	330,128	2,598,792	2,757,039
Pennsylvania R. R.....	341,195	305,461	2,783,373	2,659,728
Penn. Coal Co.....	183,810	139,713	1,195,958	1,136,208
N. Y., L. E. & W.....	69,570	42,563	510,358	324,158
Total.....	3,502,106	3,063,434	25,347,589	25,055,603

Increase for the month, 498,732 tons, or 16.3 per cent.; increase for the ten months, 291,986 tons, or 1.2 per cent.

The total allotment for the ten months under the agreement was 24,650,000 tons. The excess of actual production over the allotment is due to the increased output of the Pennsylvania Railroad Co., which is not a party to the agreement. The companies which joined in the contract have observed its provisions with a strictness which has not been apparent in the agreements made in previous years.

The percentage of the tonnage credited to each company for the ten months is as follows, comparison being made with the division for the corresponding period of last year and with the allotment agreed on for the present year:

	1885.	1884.
Phila. & Reading.....	38.85	37.0
Lehigh Valley.....	19.60	19.0

companies having been submitted to me as the President of the Southern Passenger Association, by the general passenger agents of the lines in interest, you will please restore to the tariff rates, to take effect at 7 o'clock Saturday morning, Nov. 14, all passenger rates competitive between the lines referred to, the same to be strictly maintained pending the meeting in Atlanta on Dec. 2 next."

New England Railroad Earnings.

Reports of New England railroad companies for the year ending Sept. 30 have been made as follows:

	Earnings.	Expenses.	Net earnings.
Boston & Lowell.....	\$4,037,431	\$2,786,629	\$1,250,802
1883-84.....	2,861,128	2,074,203	786,925
Boston & Maine.....	6,511,560	4,169,661	2,341,899
1883-84.....	5,577,148	4,388,461	2,188,687
Cheshire.....	561,204	347,347	213,857
1883-84.....	586,685	405,909	180,776
N. Y., N. Haven & Hartford.....	6,805,824	4,623,988	2,181,836
1883-84.....	6,887,259	4,828,246	2,059,013
Worcester, Nashua & Rochester.....	633,074	441,107	191,967
1883-84.....	639,447	458,026	181,421

The Boston & Lowell last year included its leased lines north of Concord, which were not operated by it in the preceding year. The Boston & Maine statement includes the Eastern Railroad lines in both years.

Lake Superior Iron Ore.

Shipments of iron ore from the Lake Superior regions from the opening of navigation up to Nov. 11 are reported by the Marquette Mining Journal as below, in tons:

	1885.	1884.	Inc. or Dec. P. c.
Marquette District, L'Anse.....	20,027	64,420	D. 44,393 99.0
" " Marquette.....	736,573	918,187	D. 181,614 19.8
" " St. Ignace.....	88,292	50,551	I. 37,741 74.0
" " Escanaba.....	501,488	465,551	I. 35,937 7.7
Menominee " Escanaba.....	668,898	880,807	D. 211,909 24.0
Gogebic " Ashland.....	94,265	1.....	I. 94,265
Vermilion, Two Harbors.....	217,021	.....	I. 217,021

Total..... 2,326,564 2,379,516 D. 52,952 2.3

The new districts are the Gogebic, the ore from which passes over the Milwaukee, Lake Shore & Western road to Ashland, and the Vermilion Lake, which ships over the Duluth & Iron Range road to Two Harbors.

Pig iron shipments were 8,587 tons from Marquette and 11,415 from St. Ignace, 20,012 tons in all.

The Mining Journal says: "This week's work will practically close the shipping season of 1885 for the iron mines of the Lake Superior region. The output for the year will be the lightest achieved since 1882, but the outlook for the ore mining industry is much more encouraging than it was at the close of the season last year, or that preceding. Still, the mines will not be wrought excessively during the winter. Their more recent experiences have taught the mine owners the wisdom of conservatism."

Northwestern Traffic Association.

A Chicago dispatch reports a probable break up of the Omaha and Nebraska pools in this Association, owing to the refusal of the St. Paul road to report its dressed beef business from Omaha to Chicago.

RAILROAD LAW.

The Kentucky Railroad Tax Cases.

In Washington, Nov. 16, the Supreme Court of the United States rendered its decision in the Kentucky railroad tax cases. These are three in number, similar to each other in principle, brought by the state of Kentucky against the Cincinnati, New Orleans & Texas Pacific, the Louisville & Nashville, and the Chesapeake & Ohio railroad companies, respectively, to recover certain taxes levied under the state laws. The verdict in the lower courts was in favor of the commonwealth, and the cases were brought by the railroads to the Supreme Court upon writs of error from the Kentucky Court of Appeals. Two Federal questions arose on the record in these cases, contained in the following propositions, affirmed by the plaintiffs in error: First, that the act of the State Legislature and the taxes levied in pursuance of it if enforced would in effect take the property of the roads without due process of law; and, secondly, that they constitute a denial of the equal protection of the laws, violating in both particulars the fourteenth amendment to the Constitution of the United States. The act in question provides for the annual valuation of its property by the chief officer of each railroad, and a return of the same under oath to the State Auditor of Public Accounts, and in case of failure the Auditor is required to make the valuation in such manner as he may deem best, at the expense of the companies. Provision is made for a Board of Equalization to be appointed by the Governor, whose duty it shall be to "correct and equalize" the returns of valuation made to the Auditor if the same are, in the board's opinion, too high or too low. The act declares that the same rate of taxation shall be levied for state purposes upon the railroad property in the state as upon other real estate. In support of the first proposition made by the plaintiffs in error, it was contended that the valuation made by the Board of Equalization was made without the right on the part of the roads to take notice of the proceedings, or to be heard in opposition to any proposed action.

The Supreme Court holds that the proceedings to raise public revenue by levying and collecting taxes are not necessarily judicial and that "due process of law," as applied to the case, does not imply or require the right to such notice of hearings as is essential to the validity of judicial proceedings. Respecting the second question, the discrimination against railroad companies and their property, which is the subject of complaint as being obnoxious to the fourteenth constitutional amendment, arises from the fact that in Kentucky railroad property is classed by itself as distinct from other real estate. The Supreme Court holds that the rule of equity in respect to this subject only requires the same means and methods to be applied to all the constituents of each class, so that the law shall operate equally and uniformly upon all persons in similar circumstances. There is no objection, the opinion declares, to the discrimination made as between railroad companies and other corporations in the methods and instrumentalities by which the value of their property is ascertained. The different nature and uses of their property justify the discrimination in this respect. The judgments of the Court of Appeals of Kentucky are affirmed.

OLD AND NEW ROADS.

Atlantic & Great Western.—This company has been organized to build a railroad from Greenville, S. C., south by east through Ninety-Six to Johnston on the Charlotte, Columbia & Augusta road. The projected line is about 90 miles long, and will make a pretty direct line from Greenville to Augusta, Ga. A branch from some point on the line to Charleston is also proposed.

Atlantic & Pacific.—The directors have ordered the letting of a contract for grading and bridging a section of 50 miles on the Central Division from Red Fork, Ind. Ter., westward. It is stated that another section of 50 miles will probably be built before long.

Baltimore & Ohio.—The new loan made by this company, as noted last week, is \$4,500,000 in amount, and is secured by the issue of 5 per cent. bonds having 40 years to run of the Schuylkill River East Side Railroad Co. The bonds are indorsed and guaranteed by the Baltimore & Ohio, and, it is understood, have been taken at par by a syndicate of New York, Philadelphia and Baltimore bankers.

The Philadelphia Ledger, which does not usually speak without good grounds, says: "The situation of the Baltimore & Ohio Railroad in reference to its relations with the Pennsylvania and the Reading railroads on matters affecting its Philadelphia and New York connections we are informed is about as follows: The delays in the construction of the Schuylkill bridge and in acquiring the right of way and the bulkhead privileges along the Schuylkill River, arising from disputes with property owners and the necessity of observing legal forms will probably protract the construction of the Schuylkill River East Side Railroad for many months. The year 1887 may therefore arrive before the connection with the Reading Railroad is completed and trains running. A mortgage for \$4,500,000, as we have already announced, will be placed on this road, and subscriptions are now being taken. About one-third has been placed in this city by Barker Brothers & Co., and another third in Baltimore with Robert Garrett & Sons. The remaining third is yet to be placed, and the price for the 40 year 5 per cent. bond guaranteed by the Baltimore & Ohio Railroad is stated at par, the money to be called for two or three weeks hence, when the papers are ready. The proceeds are to be chiefly used in building the East Side road, at which within a few days vigorous work has been renewed in acquiring the right of way, there having previously been some apparent dilatoriness in the matter. It is understood that the Baltimore & Ohio people are not averse to making the arrangement with the Pennsylvania Railroad some time ago suggested for carrying their through traffic to and from New York until their new line is ready, and as this completion is also barred by the fact that the Susquehanna bridge is not finished, it is thought that the arrangement made will be for a year or 18 months. In anticipation of the completion of the East Side Railroad, and the connection by it with the Reading Railroad, we are informed that papers are also in course of preparation for a traffic agreement with that road. The Baltimore & Ohio Co. will be a member of the new trunk line pool, its allotment being 8 per cent, and included as part of that of the Pennsylvania Railroad, as its traffic will for the present be carried by that line. We are informed that the three great railroad companies thus centering at Philadelphia have made all these arrangements in harmony, and that the various agreements that have been prepared or are projected are made with the knowledge of all three. It is regarded as important for a continuance of this harmonious relation that no discordant element be admitted to a share in Reading management at the next election."

Beach Creek, Clearfield & Southwestern.—It appears that this company issued \$5,000,000 of bonds to the contractor, which have been pledged as collateral for a loan of \$1,300,000. A committee was recently appointed to report a plan by which this loan can be paid and the bonds released and distributed to the subscribers for them. This committee has held several meetings, but has not yet agreed upon any plan.

Boston & Albany.—A bill in equity has been filed in the Supreme Court in Boston by the Attorney General representing the state, asking the Court to declare null and void the distribution by the company to its stockholders last year of the stock bought from the state, and to enjoin the company from paying any more dividends on the stock distributed. The Court has made the case returnable at the December term.

Boston, Hoosac Tunnel & Western.—For the quarter ending Sept. 30 the gross earnings were \$146,187; the net income \$50,042, and the charges \$31,160, showing a deficit of \$1,118 for the quarter.

Boston & Maine.—This company has negotiated a lease of the Portland & Rochester road, which will be submitted to the stockholders for approval at the approaching annual meeting, together with that of the Worcester, Nashua & Rochester. In accordance with the terms of the lease of the Eastern Railroad Co., both these leases will have to be approved by the stockholders of the Eastern Railroad Co., as well as by those of the Boston & Maine.

Eastern Railroad stock is now being extensively purchased in the Boston market, by parties who are not definitely known, but are supposed to be already largely interested in the road. The current report is that arrangements are being made for a consolidation of the Boston & Maine and the Eastern companies and of all their leased lines into one company, and that these purchases of stock are in some way intended to forward that consolidation.

Buffalo, New York & Philadelphia.—The Receiver's statement for the quarter ending Sept. 30 is as follows:

	1885.	1884.	Inc. or Dec.	P. c.
Earnings.....	\$677,565	\$694,302	D. \$16,737	2.4
Expenses.....	483,325	446,306	I. 37,019	9.3
Net earnings.....	\$194,240	\$247,996	D. \$53,756	21.6
Other receipts.....	12,750	20,958	D. 8,208	39.1
Total income.....	\$206,990	\$268,954	D. \$61,964	26.0
Charges.....	200,075	253,601	D. 53,526	21.1
Surplus.....	\$6,915	\$15,353	D. \$8,438	56.7

Charges include taxes, rentals, improvements and interest on car trusts, but not, apparently, interest on other bonds.

California Southern.—The contract recently entered into between this company and the Atchison, Topeka & Santa Fe on the one hand and the Southern Pacific on the other, provides that the California Southern and the Atchison companies shall have full use of the Southern Pacific track between Colton, Cal., and Los Angeles, running as many trains as desired, and having full use of all stations and terminal facilities in Los Angeles. For the use of these tracks the rental will be \$1,200 per mile yearly, one-half the road taxes on the line used, and a proportion of necessary repairs, based on train mileage. On the other hand, the Southern Pacific is to have full use of the California Southern track between San Bernardino and Arlington, paying the same rental—that is, \$1,200 per mile, one-half the taxes, and a proportion of the repairs and renewals. The agreement is for an indefinite period, and cannot be cancelled except on two years' written notice, and arrangement is made for the settlement of any disputes which may arise by arbitration.

The formal opening of the new through line to San Diego over this road was celebrated in that city, Nov. 18, with much ceremony.

Canadian Pacific.—A dispatch from Ottawa, Nov. 18, says: "It is authoritatively stated that at the coming session of Parliament the Canadian Pacific Railway Co. will ask for further public aid, to enable them to consolidate and develop the whole railway system of the maritime prov-

inces. They are anxious to secure contracts for the construction of all railways that have been subsidized by the Dominion government, their aim being to monopolize the control of the Canadian railway lines east of Montreal. The government will hand over to the Canadian Pacific Co., without charge, that portion of the Intercolonial Railway between St. John and Halifax, and the company will ask for a subsidy of \$10,000,000 to enable them to buy up the railways owned by other corporations in Nova Scotia and New Brunswick, as well as to build connecting links."

Cairo, Vincennes & Chicago.—Notice is given that the assent to the reorganization of the former Cairo Division of the Wabash, St. Louis & Pacific, now known under this name, has been received from holders of 90 per cent. of the bonds. Bondholders desiring to participate in the reorganization must signify their assent and send in their bonds by December 15 next, to Anthony J. Thomas and Charles E. Tracy, the committee, whose office is at No. 83 Drexel Building, New York.

Central Iowa.—This company will lease and operate the line from Lyle, Minn., to the junction with its own line near Northwood, Ia., which has been built by the Minnesota & Northwestern Co. The rental to be paid will be 6 per cent. on the cost of the road.

Central Transportation Co.—The officers of this company have decided to give up arguments and appeal to the courts to decide the question at issue with Pullman's Palace Car Co. Suit has therefore been begun in Philadelphia to recover rental due from the Pullman Co. for nine months past, which under the old lease amounts to \$198,000.

Chicago, Burlington & Northern.—Grading on this road is now well advanced for a section of about 35 miles from the Chippewa River in Wisconsin southward. Track-laying has been begun, and at latest accounts 8 miles were reported down. The company will have to lay some 35 miles of track from the Chippewa River south before January 1 next in order to secure certain local subsidies voted to that section of the road.

Chicago, Emporia & Southwestern.—This company has filed articles of incorporation in Kansas, to build a railroad from White Cloud, near the Nebraska line, to Emporia, and thence through Wichita to some point in Texas, with a branch to Atchison, about 600 miles in all. The capital stock is fixed at \$12,000,000.

Chicago, Milwaukee & St. Paul.—It is stated that this company will begin work early in the spring on the extension of its Dakota Division, from Ipswich, Dak., westward to the Missouri River. Part of the line has already been located.

Cincinnati, Hamilton & Dayton.—A dispatch from Cincinnati, Nov. 17, says: "The Superior Court to-day granted a motion of the Erie Co. in the suit of Proctor and others against it and the Cincinnati, Hamilton & Dayton Co., and others, consolidating this suit with the suit of Hafer against the Cincinnati, Hamilton & Dayton Co., and entered a decree dissolving the trust agreement and releasing the Erie from its guarantee of a 6 per cent. dividend upon a majority of the Cincinnati, Hamilton & Dayton stock. A motion, on behalf of the Erie Co., to strike out a large portion of Mr. Jewett's answer in the Hafer suit, was also granted. The matter stricken out was a long history of Mr. Jewett's connection with the Erie and the Chicago & Atlantic roads, in which he endeavored to defend the course he had pursued, and to criticize the action of the present Erie management. The Court decided that such matter was irrelevant."

Columbus, Hocking Valley & Toledo.—Notice is given that the common and preferred stock of the Toledo and Ohio Central Co., which is now held by the trustees, will be distributed *pro rata* to the stockholders of the Columbus, Hocking Valley & Toledo Co., of record on the stock books on Nov. 17.

Dakota & Great Southern.—This company was incorporated some time ago to build a railroad from Grand Valley, Dak., to Tower City on the Northern Pacific, and thence southward. The right of way for about 75 miles was obtained and considerable grading done. The owners are now trying to sell the road, as it stands, to some one who will finish it.

Danville, Olney & Ohio River.—The United States Circuit Court in Springfield, Ill., has entered a decree of foreclosure against this road and ordered a sale of the property to satisfy the claims of the bondholders. The decree was issued on the suit of the trustees under the first mortgage. The road, which has been for some time in the hands of a receiver, extends from Danville, Ill., to Olney, 110 miles. By the latest statement there were outstanding \$776,000 first-mortgage bonds, and there were also \$500,000 receiver's certificates, which are issued for equipment and to complete the road. It has not been very profitable property, not having earned its operating expenses until very recently.

Delaware, Lackawanna & Western.—This company makes the following statement for its leased lines in New York for the quarter ending Sept. 30:

	1885.	1884.	Inc. or Dec.	P. c.
Earnings.....	\$1,653,403	\$1,602,017	I. \$51,386	3.2
Expenses.....	920,171	757,400	D. 162,771	18.1
Net earnings.....	\$1,033,232	\$844,617	I. \$188,615	22.3
Rentals and taxes.....	565,257	521,863	I. 43,394	8.3
Surplus.....	\$467,975	\$322,754	I. \$145,221	45.0

The most notable feature of this statement is the very low proportion of working expenses, which were 37.5 per cent. of gross earnings this year, and 47.3 per cent. last year.

Denver & Rio Grande.—The modifications of the plan of reorganization as they have been accepted by the European committees have now been received in New York. They embrace substantially the following points:

The reorganization committee shall consist of nine members instead of five.

The cash assessment on the capital stock is reduced from \$8 to \$6 per share, for which \$6 will be given in the preferred stock of the new company.

The capital stock of the new company shall be increased to \$28,000,000 of preferred and \$45,500,000 of common stock, and the 4 per cent. first consolidated mortgage gold bonds shall be increased to \$42,000,000. The increases of capital stock, both preferred and common, and of the consolidated bonds, are to be used exclusively for the purposes of acquiring the property and franchises of the Denver & Rio Grande Western Railway Co. or for extending the line of the new railroad company to Ogden.

Car trust certificates will receive \$600,000 in cash, and for the remainder then outstanding the following, viz:

For each car trust certificate of \$1,000 bearing 6 per cent. interest, \$1,200 in 4 per cent. consolidated bonds of the new company and \$300 in the preferred stock; and each car trust certificate of \$1,000 bearing 7 per cent. interest, \$1,200 in said bonds and \$400 in said preferred stock.

The 11th article of the agreement of June 10, providing

for the cancellation by the committee of the unused preferred stock, is abrogated.

Dubuque & Northwestern.—This road is now graded from Dubuque, Ia., to Durango, 8 miles, and work is in progress for 16 miles further. Track-laying was last week begun at Dubuque.

East Tennessee, Virginia & Georgia.—The adjournment of the annual election last week, which was entirely unexpected, was made on a technical point, the neglect of the Secretary to furnish a certified list of the stockholders. It is reported that the real motive was the presence of Mr. Holt, of New York, with proxies representing a majority of the stock, which proxies he held in the interest of Mr. George I. Seney, and which he was expected to use for an entirely new board of directors. The representatives of the present board raised the point that, owing to the neglect of the Secretary, no election could be legally held, and the meeting was adjourned until March 25 next, Mr. Holt protesting.

Nelson Robinson and other stockholders, who were represented by Mr. Holt at the Knoxville meeting, have begun suit to enjoin the company and its officers from transferring stock or registering income bonds until after directors are elected. They claim that the adjournment of the meeting was illegal and was intended to deprive them of their votes, and ask that the Court order an election to be held.

Evansville, Washington & Brazil.—The track on this road is now about completed to Worthington, Ind., 18 miles beyond the last point noted and 43 miles from the starting point at Washington. At Worthington it connects with the Terre Haute & Southeastern road, running from that point to Terre Haute. The company intends to build a branch from Saline City to Brazil, to reach the coal mines there, provided certain subsidies are voted by the towns on the line.

Full Brook Coal Co.—This company makes the following report to the New York Railroad Commission for the railroad lines leased and operated by it for the quarter ending Sept. 30:

	—Corn., Cow. & An.— 1885.	—Syr. Gen. & Corn.— 1885.	—Syr. Gen. & Corn.— 1884.
Earnings.....	\$139,369	\$156,074	\$145,785
Expenses.....	102,996	91,972	120,508
Net earnings...	\$36,373	\$64,052	\$25,277
Rentals, etc.....	41,594	40,625	53,191
Net or deficit...	D. \$5,221	N. \$23,427	D. \$27,914

The Corning, Cowanesque & Antrim shows a decrease of 10.7 per cent. in gross and of 43.2 per cent. in net earnings. The Syracuse, Geneva & Corning lost 16.0 per cent. in gross earnings, but shows a decrease from last year's deficit.

Fort Worth & New Orleans.—The people of Waxahachie, Tex., having raised the \$25,000 bonus asked for by this company, it has been decided to build the road through that town. Negotiations are now in progress which will, it is expected, result in the letting of contracts for the construction of the road for the entire distance from Fort Worth to Corsicana.

Franklin & Megantic.—At the annual meeting in Kingfield, Me., Nov. 11, the stockholders voted to authorize the issue of \$30,000 in second mortgage bonds for the purpose of paying off the floating debt and making necessary improvements of the road. The road, which was completed about a year ago, extends from Strong, Me., to Kingfield, 15 miles, and is 2-ft. gauge. The issue of first mortgage bonds is \$50,000.

Grand Trunk.—This company publishes in London the following statement for September and the three months from July 1 to Sept. 30:

	—September— 1885.	—Three months— 1885.	—Three months— 1884.
Earnings.....	£285,142	£323,450	£292,935
Expenses.....	207,621	222,028	205,502
Net earnings...	£77,521	£101,422	£187,433

For the three months the gross earnings decreased £126,879, or 13.8 per cent., and the expenses £50,896, or 7.8 per cent., leaving a decrease in net earnings of £76,037, or 28.9 per cent.

The statements for the controlled lines west of Detroit for the three months are as follows:

	—Chi. & G. T.— 1885.	—Det., G. H. & M.— 1885.	—Chi. & G. T.— 1884.	—Det., G. H. & M.— 1884.
Earnings.....	\$133,653	\$167,311	\$131,652	\$193,111
Expenses.....	115,205	129,583	109,495	145,840
Net earnings...	\$18,448	\$37,728	\$22,157	\$47,271

The Chicago & Grand Trunk shows a decrease of £33,678, or 20.2 per cent., in gross earnings, and of £19,300, or 51.2 per cent., in net earnings. On the Detroit, Grand Haven & Milwaukee there was a decrease of £5,559, or 7.8 per cent., in gross earnings, and of £3,214, or 12.7 per cent., in net earnings.

Gulf, Colorado & Santa Fe.—The track on the extension of this road is now laid to a point 71 miles beyond the late terminus at Lampasas, Tex., leaving only 3 miles to complete it to Brownwood. Further progress is at present delayed to await the completion of two bridges near Brownwood, but it is expected that trains will run to that point within a very short time.

The earnings of this road for four months, from July 1 to Nov. 1, are shown in the following statement:

	1885.	1884.	I. c. or Dec.	P. c.
Gross earnings:				
July.....	\$139,430	\$126,431	I. \$12,999	10.0
August.....	150,933	131,652	I. 19,281	14.6
September.....	211,162	185,271	I. 25,891	14.0
October.....	290,012	211,061	I. 78,951	37.5
Total earnings...	\$791,537	\$654,415	I. \$137,122	21.0
Operating expenses.	489,717	549,149	D. 59,432	10.8
Net earnings.....	\$301,820	\$105,275	I. \$196,545	186.7

The mileage operated was 536 till September, 1885, when it increased to 590.

Huntingburg, Tell City & Cannelton.—This company has been incorporated to build a railroad from Cannelton, Ind., to Huntingburg, on the Louisville, Evansville & St. Louis road, a distance of 35 miles. The object of the road is to develop coal mines on the line.

Illinois Central.—The traffic of this road in Chicago has been somewhat embarrassed by a strike of the freight train crews, the brakemen having asked for an increase of \$5 a month in wages, or for payment by mileage, with allowance for overtime and Sunday work. At latest accounts the Chicago yards were full of cars, and no freight trains were being sent out. It is not expected that the strike will extend to the other divisions of the road.

Indianapolis, Peru & Chicago.—The trustees under the mortgage have approved of the arrangements made for the operation of this road by the Wabash Receivers. Under this contract the Wabash Receivers are to operate the line, turning over the net earnings to the trustees, and this

arrangement is to continue until the road is sold under this suit.

International, of Maine.—At the annual meeting in Bangor, Me., last week, the stockholders voted to accept the act of the Maine Legislature, granting the right to bridge Moosehead Lake. It was stated at the meeting that five parties are now employed making the final location of the road, and that it is probable that contracts for its construction will be let before Jan. 1. There are already 12 miles graded on the northern part of the line adjoining the Canadian boundary.

Jacksonville, Tampa & Key West.—This company is now running its regular trains to Seville, Fla., 29 miles southward from the old terminus at Palatka and 85 miles from Jacksonville. Work is progressing steadily on the extension south to Sanford, with the tracklaying making regular progress toward that point.

James River Valley.—This road is now in operation from Jamestown, Dak., to Lamoure, a distance of 50 miles. It will be for the present operated as a branch of the Northern Pacific, but it is reported that an offer for its purchase has been made by the Chicago, Milwaukee & St. Paul Co., that company desiring to make the road a part of its James River Valley line. It is not expected that any more track will be laid this season, but in the spring work will be begun on an extension from Lamoure southwest to Elendale.

Jamestown & Northeastern.—This company has been organized to build a road from Jamestown, N. Y., to Falconer on the Dunkirk, Allegheny & Pittsburgh. The intention is to operate the road as a branch of that line.

Kansas & Gulf Short Line.—This road, whose completion was recently noted, is now running regular trains between Tyler, Tex., and the new southern terminus at Lufkin, a distance of 89 miles. At Tyler connection is made with the International & Great Northern and the Texas & St. Louis, and at Lufkin with the Houston, East & West Texas. In connection with the last named road and the Texas & St. Louis the new road makes a through narrow-gauge line between Cairo and Houston, Tex.

The stations on the new road, with distances from Tyler are: Ashcraft, 5.36 miles; Flint, 10.15; Bullard, 16.00; Mt. Selman, 21.53; Smyrl, 25.25; Jacksonville, 29.58; Independence, 33.58; Dial, 37.75; Bradshaw, 41.45; Rusk, 45.17; Linwood, 51.58; Stephens, 54.33; Alto, 57.35; Comer, 65.13; Forest, 67.71; Wells, 72.36; Bodan, 77.60; Baker's Mill, 83.44; Lufkin, 89.05 miles.

Kingwood & Tunnelton.—This road is now graded from Tunnelton, W. Va., on the Baltimore & Ohio road, to within about a mile of Kingwood, the county seat of Preston County, a distance of about 12 miles. It is expected that tracklaying will begin shortly. The road will be of 8-ft. gauge, and will be laid with 30-lb. steel rails. It will open up several veins of gas and coaling coal, and will also reach a great body of valuable timber.

Lake Erie & Western.—The Central Trust Co. of New York has begun suit in the United States Circuit Court at Toledo for the foreclosure of the mortgages under which it is trustee. The case is removed to that court from the Court of Common Pleas of Sandusky County, O., where the suits against this company have heretofore been conducted.

Little Rock & Fort Smith.—The land sales of this company for the nine months to Sept. 30 were 19,300 acres, for \$69,768, showing a small increase over last year.

The earnings of the company, which in the early months of the year showed a considerable falling off, have been much better for the last few months, so that for the nine months ending with September they showed a total increase of \$16,012, or 4.5 per cent.

Little Skookum.—The grading of this road has been completed from Blakely Mills, Wash. Ter., up the Little Skookum River for 4 miles, and track-laying is now in progress. The road is built by the Blakely Mill Co., and will be used chiefly for logging purposes, but the intention is to extend it hereafter to Gray's Harbor, a distance of about 50 miles.

Louisville, Evansville & St. Louis.—In the United States Circuit Court at Indianapolis, Nov. 16, the Mercantile Trust Co., of New York, trustees under the first and second mortgages, filed a cross bill in the suit in which the Receiver was appointed, asking for the foreclosure of those mortgages and the sale of the road. This action is in accordance with that of the bondholders' committee in Boston, who have decided on a foreclosure preliminary to the reorganization of the company.

A meeting of the bondholders was held in Boston, Nov. 16, at which the committee appointed at the previous meeting asked for more time to prepare their report. This request was granted, and the report will probably be presented within ten days. It was stated at the meeting that a peculiar provision of the mortgage gave unpaid coupons a lien prior to that of the bonds, and it was also stated that quite a number of coupons were held separately from the bonds.

Los Angeles & San Gabriel Valley.—This road is now completed and in operation to Lamanda Park, Cal., 13.4 miles eastward from Los Angeles, and 2.1 miles beyond the recent terminus at Olive Wood. Construction is in progress for 15 miles beyond the present terminus. The road, which is of standard gauge, is fully equipped, and all the engines and cars are provided with the Westinghouse automatic brake.

Marshall & Northwestern.—The engineers of this company have begun to locate the extension of this road to Paris, Tex., the company having accepted the proposition of that town and having agreed to make it a point on the road.

Memphis, Birmingham & Atlantic.—In Oxford, Miss., Nov. 14, the United States Circuit Court entered a decree approving the sale of the Memphis, Selma & Brunswick road, and directing a deed to be executed to the new company which has been organized under the above name. The stockholders of the new company, who are chiefly residents of Memphis and Richmond, Va., have completed their organization, and will, as soon as possible, make arrangements to extend the road from Holly Springs, Miss., westward toward Birmingham, Ala. The road is now in operation from Memphis to Holly Springs, 40 miles.

Memphis & Charleston.—At the annual meeting last week, the stockholders of this company voted to authorize the issue and sale of \$2,250,000 additional stock, the proceeds to be used for paying off floating debts and for building a new track from Stevenson, Ala., to Chattanooga, 40 miles, where the road now uses the Nashville, Chattanooga & St. Louis track.

Midland, of Indiana.—This company is making arrangements to extend its road west of Lebanon, Ind., to which point construction is now in progress. Three routes are proposed—one by way of New Ross to Whiteville; one to Lagoda on the Louisville, New Albany & Chicago, and the third to Crawfordsville. The decision between the three

routes will be made shortly, and will probably depend on the amount of subscription offered.

New York, Chicago & St. Louis.—The Receiver's report for the quarter ending Sept. 30 is as follows:

Earnings.....	\$737,025
Expenses.....	576,089
Net earnings.....	\$160,936
Rentals and taxes.....	94,016
Balance.....	\$66,920

This statement takes no account of interest. The interest charges for the quarter were \$310,690, showing a deficit of \$243,770.

New York & New England.—Judge Devens, of the Massachusetts Supreme Court, has modified the injunction against the issue of preferred stock so far as to permit subscriptions for the new stock to be made in cash by the creditors of the company, the money thus received to be repaid to them in settlement of their claim. This makes it possible for the company to use the preferred stock in settlement of floating debt claims in an indirect way.

New York, West Shore & Buffalo.—In the matter of the application of the Receivers of this road for increased compensation, Judge Brown has decided that instead of the payment to the Referee of an amount sufficient to pay the Receivers' claims, should the case be decided in their favor, that the road shall be sold subject to such payment for Receivers' fees as the Court shall finally order. In giving this ruling, the Court said that the sale of the road shall not be postponed, and that the other course would require the payment of a very large amount to the Referee, to be held by him subject to the decision of the Court of Appeals.

North Carolina Midland.—At a recent meeting of this company resolutions were passed to open the books for additional subscriptions. This action is intended to remove the company from the control of the Virginia Midland, which has heretofore held a majority of the stock. It is understood that subscriptions to a considerable amount are ready to be offered on condition that work shall be resumed on the road from Mocksville, in Davy County, northeast to Winston, the terminus of the Northwestern North Carolina road, a distance of about 30 miles, and also on a section of 15 miles from Winston northward to Walnut Cove.

Northern (New Hampshire).—The hearing in the suit to set aside the lease was closed Nov. 13, when by agreement counsel then requested Judge Carpenter to make certain findings formally and transfer the case to the full bench of the Supreme Court, where it will be heard at the December term.

Ohio Valley.—This recently organized company will, it is said, soon begin work on its line, which is already surveyed from a point on the Ohio River opposite Evansville, Ind., through Dekoven, Ky., to Jackson, Tenn., a distance of about 200 miles. The projectors are chiefly Pittsburgh people, who are largely interested in coal mines about Dekoven.

Ogdensburg & Lake Champlain.—This road earned \$29,000 net in September, and \$131,852 for the six months ending Sept. 30. The fixed charges were \$106,000, leaving a surplus of \$25,852 for the half year.

Palisades.—A company has been incorporated under this name to build a narrow-gauge railroad from Jersey City along the summit of the Palisades, parallel with the Hudson River, to Piermont, a distance of about 24 miles. Surveys of the road have already been made, and the company states that construction will be begun in the spring. The capital stock is fixed at \$250,000. The line adopted is parallel to that of the Northern Railroad of New Jersey, but is for the most part from some two miles to the eastward of that road, and is intended to open up suburban settlements. The country along the rocky ridge known as the Palisades, which overlooks the Hudson River, offers many fine sites for building which have not been heretofore utilized because of their distance from the existing railroad line, which, although it is not very great, is sufficient to prevent settlement by suburban residents who must necessarily live within walking distance of their railroad stations.

Pennsylvania.—The Philadelphia Press says: "Arrangements are progressing by the Pennsylvania Railroad Co. to do away with the various grade crossings on their lines located in the populous sections of the suburban portion of the city through which they pass. The first crossing of this nature on the main line is at Eagle station, 15 miles out from the city, and is the only public road thus passed in 22 miles. On the New York Division there are four grade crossings: Lamb Tavern road, Falls road west of Germantown Junction, Kensington avenue and Frankford avenue. It is proposed in these cases to construct bridges at the rate of one per year. At the North Penn Junction, the Pennsylvania road is unable to overcome the grade crossing of itself, but has offered to bear a part of the expense if the North Pennsylvania Co. will go below grade, as can comparatively easily be done, it is held.

"The inability of the Pennsylvania to avoid this dangerous crossing is due to the fact that the city's overhead bridge at Fifth street prevents a rise of grade, and the proximity of the Richmond Branch of the Philadelphia & Reading Railroad renders going below grade likewise impossible. The North Pennsylvania will encounter no serious difficulties in depressing its tracks and going beneath the roadbed of the Pennsylvania."

Philadelphia & Reading.—A new bill of foreclosure of the general mortgage has been filed by counsel for Wm. M. Robinson and the Fidelity Trust Co.

The Philadelphia Times of Nov. 19 says: "Mr. Gowen will not be elected President of the Reading Railroad at the annual meeting in January. The foreclosure proceeding will be pushed to a termination as speedily as possible. The road will be sold, and the company reorganized on a basis friendly to the Pennsylvania Railroad Co. These are Mr. Vanderbilt's purposes, and he will spare no effort to accomplish them. These facts make perfectly clear some things which have completely mystified the Street for some weeks. The cause of the rise in Reading from 6½ to 12½ has been a puzzle which nobody even tried to guess, but it is made perfectly clear by facts which have just come to light.

"During the rise in Reading everybody has known that the buying was done in New York, but there everybody's knowledge stopped. The buyer was J. B. Newcomb & Co., the same firm who carried the 50,000 shares of Jersey Central belonging to the Reading Co. until they were ordered to sell them by Vanderbilt. Newcomb & Co. have been buying Reading on orders from William H. Vanderbilt. This was a part of his scheme to reorganize the company and control the next annual election. It was a deliberate plan to disfranchise a large amount of stock which would perhaps be voted for Mr. Gowen.

"By the charter of the company no stock can be voted at the annual election that has not been owned by the then holders at least 90 days. The next election takes place on Jan. 18, 1886. No stock can be voted at that election which has been transferred since Oct. 18, 1885. Vast quantities of Reading stock have been transferred since then and so is dis-

franchised, and that is what the boom was made for, to make it more of an object for persons to sell their stock than vote it. There is always much Reading stock floating in the Street, but outside of that, much has been disfranchised since Oct. 18. If the market had been permitted to drag along as it did during the Summer, probably nearly the entire share capital would have been votable in January, and on account of the demoralized condition of the company and general dissatisfaction with the present management might have been hard to control. The easiest way to manage it was to disfranchise it, and this has been done. Mr. Vanderbilt is now in a position to control the election. The property will be sold under foreclosure, and the new company will work in harmony with the Pennsylvania. This is a part of the price that Mr. Vanderbilt pays for peace. It is not likely, however, to cost him much. He will take care of himself in the reorganization, without regard to what comes of others whose money is invested in Reading."

Portland & Rochester.—An agreement has been made for the lease of this road to the Boston & Maine Co., which will be submitted to the stockholders at the approaching annual meeting. It has been understood for some time that the Eastern and the Boston & Maine companies held a controlling interest in this road, and under the new arrangement it will be operated by them directly. The road extends from Portland, Me., to Rochester, N. H., 52½ miles. It was sold under foreclosure some years ago, and was reorganized with an exceedingly light capital account, having only \$600,000 in stock and no funded debt. The earnings are light, having been last year \$183,809 gross and \$25,230 net, but they were sufficient to pay 4 per cent. on the small amount of stock. At Rochester the road connects with the Worcester, Nashua & Rochester, making part of the through line from Portland to Worcester, Mass.

Rochester & Pittsburgh.—The statement for the quarter ending Sept. 30 shows gross earnings of \$350,423; expenses of \$236,902, and net earnings \$113,521. Taxes and rentals were \$12,301, leaving a balance of \$101,320 for the quarter. The statement does not include anything for interest this year.

Rome, Watertown & Ogdensburg.—The report for the quarter ending Sept. 30 shows:

	1885.	1884.	Inc. or Dec.	P. c.
Earnings	\$483,435	\$411,426	I. \$71,509	17.4
Expenses	285,150	259,169	I. 35,987	13.9
Net earnings	\$188,279	\$152,757	I. \$35,522	23.2
Income other sources	7,471	8,505	D. 1,034	12.1
Total income	\$195,750	\$161,262	I. \$34,488	21.4
Interest, taxes and rentals	149,238	192,215	D. 42,977	22.4
Net income	\$46,512	\$30,933	I. \$15,579	50.4

*Deficit.

The quarter shows a large increase in business, with an increase in expenses somewhat less in proportion.

St. Joseph & Grand Island.—At a recent meeting of the stockholders of this company, the acts of the committee of reorganization were approved and confirmed, and the mortgages and bonds issued under them were also approved. The agreement with the Union Pacific Co. was ratified.

Scioto Valley.—The following is a statement of gross and net earnings for three months, July to September, 1885:

	July.	Aug.	Sept.	Total
Gross earnings	\$12,088	\$47,485	\$51,908	\$111,571
Operating expenses	35,451	35,199	35,510	106,160
Net earnings	\$8,637	\$12,286	\$16,398	\$37,311

These earnings were at the rate of \$1,081 gross and \$286 net per mile, for the three months.

Securities on the New York Stock Exchange.—The Governing Committee have placed the following securities on the lists:

Chicago, Milwaukee & St. Paul. \$5,000,000 additional preferred stock, to be listed after Nov. 16.

Columbus, Hocking Valley & Toledo. \$1,383,500 additional stock, making the total amount now listed \$11,700,000.

Missouri, Kansas & Texas. \$106,000 additional general consolidated 6 per cent. bonds, making the total amount listed \$31,000,000.

Northern Pacific. \$20,000,000 general second-mortgage 6 per cent. bonds, having 50 years to run.

Valley of Ohio. \$1,000,000 consolidated 6 per cent. bonds. These bonds are subject to the prior lien of a first mortgage for \$1,600,000.

Shreveport & Houston.—The bondholders having failed to make the first payment of the floating debt, in accordance with their agreement with the Receiver, it is understood that all negotiations are at an end, and the Receiver will retain possession of and operate the line. The road is the Louisiana end of the Houston, East & West Texas, and the agreement recently made provided that the receivership should be ended and the road should be turned over to the bondholders, they assuming the payment of the floating debt incurred in the completion of the road.

Topeka, Salina & Western.—Work was recently resumed on this road, and the track is now laid to Herrington, Kan., 25 miles westward from Salina and 10 miles beyond the terminus at the close of last year. Work is to be pushed to Salina.

Troy & Greenfield.—Judge Russell, Chairman of the Massachusetts Railroad Commission, says in regard to the Hoosac Tunnel: "The impression seems to be general that last session's legislation has become void by limitation. That is a mistake. In the first section of chapter 297 of the acts of 1885, three months from the passage of the act, June 5, are allowed in which any 25 or more persons, not less than three-fourths of them inhabitants of the Commonwealth, may form a new corporation for the purpose of operating the tunnel, etc.; but under section 5 it will be seen that three years are given to the several roads named for consolidation. Instead, therefore, of the time having expired, it has just begun. The property will probably continue to be operated by the Fitchburg Railroad, as at present."

Troy & Boston.—This company's statement to the New York Railroad Commission for the quarter ending Sept. 30 shows that the gross earnings were \$75,877; the net income \$33,312, and the charges \$42,565, leaving a deficit of \$9,253 for the quarter.

Wabash, St. Louis & Pacific.—In the United States Circuit Court in St. Louis last week an interlocutory decree or order was granted which contemplates the ascertaining of the exact amount of the Wabash liabilities, with a view to fixing an upset price at the time of the sale. The Master is directed to report: First, The number and amount of the general mortgage bonds and the interest due thereon, and the names of the holders; 2d, The number and amount of the collateral trust bonds, interest due and names of holders; 3d, Whether default has been made in the payment of the inter-

est, and when; 4th, Whether any property (other than that specified in the collateral first mortgage) was acquired subsequent to the making of the general mortgage, June 1, 1880; 5th, The amount of liens prior in right to the mortgages above named; 6th, The amount of receivers' certificates issued and the indebtedness incurred by the receivers in this and auxiliary proceedings; 7th, Amount of court costs incurred and compensation due to officers for services already rendered; 8th, As to the agreement alleged between the several bondholders and the terms thereof, the number of the bonds represented and the names of the holders thereof; 9th, Whether the Wabash Co. is insolvent, and whether the property embraced is sufficient security for the indebtedness; 10th, A description of the real estate in Cook County, Ill., embraced in the collateral trust; 11th, The Master to take evidence when most available; 12th, To give 5 days' notice of the hearing of such evidence.

At the same time a decree *pro confesso*, was taken in the Wabash case against the Attica, Covington & Southern Railway Co., the Havana, Ranton & Eastern Railway Co., the Council Bluffs & St. Louis Railway Co., the Toledo, Peoria & Western Railroad Co., the St. Louis, Jerseyville & Springfield Railroad Co., and the Peoria & Pekin Union Railway Co., none of these companies having pleaded, answered or demurred to the bill of the Central Trust Co.

Leave was granted to the Farmers' Loan & Trust Co. to file its cross-bill in the United States Circuit Court of Iowa to foreclose the mortgage on the Centreville, Moravia & Albia Railroad, and to make the Wabash Receivers parties to that proceeding.

Worcester, Nashua & Rochester.—at a meeting of the board of directors in Worcester, Nov. 13, it was resolved to distribute to the stockholders the stock owned by the company, which will make a stock dividend of 17 per cent., or 17 shares of stock for each 100 now owned. Assignable certificates will be issued for fractional shares. This stock held by the company is \$288,300 in amount. It was originally stock of the Nashua & Rochester Co., and represented advances made by the Worcester & Nashua for the construction of the Nashua & Rochester road. When the two companies were consolidated the stock was converted into stock of the consolidated company and retained in the treasury of the company.

Judge Devens in the Supreme Court at Boston has issued a temporary injunction against the proposed distribution of stock to the stockholders of this company. The injunction is issued on petition of the New England Life Insurance Co., of Boston, whose complaint sets forth that it holds bonds of the company to which is attached the privilege of exchange for stock, and the petitioner claims that such exchange will be impossible in case of the proposed distribution, as the legal power of the company to issue stock will then be exhausted. The case will come up for trial shortly.

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Indiana, Bloomington & Western.

This company owns a line from Springfield, O., to Pekin, Ill., 343 miles, and leases tracks from Pekin to Peoria, 10 miles. It also leases the Cincinnati, Sandusky & Cleveland, from Springfield to Sandusky, 146 miles, and the Columbus, Springfield & Cincinnati, from Springfield to Columbus, 44 miles. It leased last year the Indianapolis, Decatur & Spring-

field, 152 miles (this lease having been since given up), making 695 miles worked.

The company has issued no report for several years. The figures given below are from its statement to the Railroad Commissioner of Ohio for the year ending June 30.

The funded debt includes \$1,000,000 first mortgage preferred 7s; \$3,000,000 Eastern Division first 6s; \$3,500,000 first-mortgage 5s; \$1,500,000 second 5s, and \$500,000 debenture 6s. The first and second 5s will be 6s after 1887. The total interest-bearing debt is thus \$9,500,000, and there are also \$4,637,300 income bonds, making a total funded debt of \$14,137,300.

The earnings for the year were:

	1884-85.	1883-84.	Inc. or Dec.	P. c.
Earnings	\$2,582,835	\$2,901,533	D. \$318,618	11.0
Expenses	1,014,510	1,932,993	D. 18,483	1.0
Net earnings	\$668,425	\$968,540	D. \$300,135	31.0
Gross earn. per mile	3.716	4.175	D. 459	11.0
Net	970	1.94	D. 424	31.0
Per cent. of exps.	70.6	66.6	I. 4.0	....

The road carried 974,857 passengers and 2,213,559 tons of freight last year, against 1,115,600 passengers and 1,892,125 tons in the preceding year; a decrease of 140,743 passengers, but an increase of 321,434 tons of freight.

The result of the year was as follows:

Net earnings as above	\$668,425
Rentals paid	559,690
Balance	\$108,765

The yearly interest charge on the mortgage bonds being \$530,000, this shows a deficit of \$421,235 for the year, without taking into account the income bonds, on which interest is not payable unless earned.

Baltimore & Ohio.

At the close of the 59th fiscal year, on Sept. 30 last, this company operated directly the following lines, owned or leased:

	Miles.
Main Stem, Baltimore to Wheeling..... 379.0	
Camden, Locust and Curtis Bay branches in Baltimore..... 11.0	
Frederick Branch..... 3.5	
Valley Branch, Harper's Ferry to Harrisonburg..... 101.0	
Metropolitan Branch, Point of Rocks to Washington..... 43.0	
Alexandria Branch (Wash. City & Pt. Lookout R. R.)..... 12.5	

Total Main Stem and branches..... 550.0	
Washington Branch, Relay House to Washington..... 31.0	
Parkersburg Branch, Grafton to Parkersburg..... 105.4	
Central Ohio Div., Belleair to Columbus..... 138.6	
Lake Erie Div., Newark to Sandusky..... 116.0	
Chicago Div., Chicago Junction to Chicago..... 263.0	
Wheeling & Pittsburgh Division..... 73.5	
Newark, Somerset & Straitsville..... 44.0	
Pittsburgh Div., Cumberland to Pittsburgh..... 150.0	
Pittsburgh Div., branches..... 86.5	
Total..... 238.5	

The Somerset & Cambria road, formerly included with the Main Stem and branches, is now given with the Pittsburgh Division. The Wheeling & Pittsburgh Division includes the former Wheeling, Pittsburgh & Baltimore and the Pittsburgh Southern roads and the Ohio & Baltimore Short Line. The only addition during the year was 6 miles on the Ohio & Baltimore Short Line. Track was laid on a large part of the extension to Philadelphia, but no part of it was brought into regular operation.

In addition to the above lines there are operated under contract, but not included in report, the Washington County road, from Weverton to Hagerstown, Md., 34 miles; the South Branch road, from Green Spring to Romney, W. Va., 16 miles; and the Valley Railroad, from Harrisonburg, Va., to Lexington, 62 miles.

The following statements are from acting President Robert Garrett's report as presented at the annual meeting on Monday of this week:

FINANCIAL CONDITION.

"The profit and loss account shows an increase for the past fiscal year of \$110,819. It will be seen by this account that the surplus fund, which represents invested capital derived from net earnings, and which is not represented by either stock or bonds, now amounts to \$47,814,615.

"The payments for investments on account of the sinking funds for the redemption of the sterling loans due in 1895, 1902, 1910 and 1927, during the year amounted to \$627,420 (\$129,632).

"In accordance with the agreement with the city of Baltimore, the tenth annual payment, namely, \$40,000 of the principal of the bond for \$1,000,000 given for the purchase of the interest of the city in the Pittsburgh & Connellsville Railroad Co., has been made, thus reducing this obligation to \$600,000.

The following statement shows the payments made and the increments in sinking funds during the fiscal year for account of the respective debts:

Increment of sinking funds for the redemption of the sterling loans due in 1895, 1902 and 1910.....	\$575,148
Payment on account of the principal of debt due to the city of Baltimore for the purchase of its interest in the Pittsburgh & Connellsville Co.	40,000
Pittsburgh & Connellsville sinking fund.....	27,000
Baltimore & Ohio & Chicago sinking fund.....	52,272
Washington City & Point Lookout sinking fund.....	5,430
Total.....	\$699,850

"The following shows the aggregate of payments made on account of the principal, and the investments for sinking funds on account of the debts stated, namely:

Mortgage loan redeemable in 1880.....	\$123,000
Mortgage loan redeemable in 1885.....	790,000
Bonds of the Northwestern Virginia Railroad Co. for \$500,000, indorsed by the Baltimore & Ohio, payable in 1885.....	360,000
Loan of the city of Baltimore.....	2,425,000
Sterling loan, redeemable in 1895.....	1,965,160
Sterling loan, redeemable in 1902.....	2,500,387
Sterling loan, redeemable in 1910.....	1,389,904
Sterling loan for the Baltimore & Ohio & Chicago, redeemable in 1917.....	362,032
Purchase of the interest of the city of Baltimore in the Pittsburgh & Connellsville.....	400,000
Sinking Fund of the Pittsburgh & Connellsville.....	230,044
Sinking Fund of the Baltimore, Washington & Alexandria Branch of the Washington City & Point Lookout.....	55,339
Total.....	\$10,600,867

Cash dividends of 5 per cent. each were paid on Nov. 1, 1884, and on May 16, 1885.

"The Pittsburgh & Connellsville Railroad was leased to the Baltimore & Ohio Co. for a period of 50 years from Jan. 1, 1876, with the privilege of renewal in perpetuity. It was largely indebted to this company for cash advances made in past years for the construction, improvement and equipment of its road. In order to reimburse the Baltimore & Ohio Co. for these cash advances, and to repay it for the acquisition and construction of certain branch lines which were deemed essential for the strength and prosperity of the Pittsburgh Division, as well as to secure to it additional equipment, terminal facilities and other improvements, the President

